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THE VEGETATION OF THE DISTRICT OF MINBU IN UPPER BURMA.

BY

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THE VEGETATION OF THE DISTRICT OF MINBU IN UPPER BURMA.

By A. T. Gage.

CHAPTER I.—ITINERARY.

The writer having been deputed by Major Prain, I.M.S., Director of the Botanical Survey of India and Superintendent of the Royal Botanic Garden, Calcutta, to proceed to the district of Minbu in Upper Burma to collect specimens and to study the vegetation of the district, left Calcutta by steamer on the 27th February 1903 and arrived at Rangoon on the 2nd March 1903. As the steamer reached Rangoon just too late to allow the writer to proceed at once to Minbu, he utilised the enforced stay in collecting in the neighbourhood of Rangoon itself. While there the writer also called upon the Director of Land Records and Agriculture and upon the Revenue Secretary, by both of whom he was provided with letters of intoduction, by the former to the Deputy Commissioner of Minbu, and to the Superintendent of Land Records there, by the latter to the Deputy Conservator of Forests. The writer left Rangoon on the 4th March by train for Prome, whence the journey was continued by the Irawaddy Flotilla Company's steamers until Minbu was reached on the 7th March, where the writer was received by his friend Captain Fenton, I.M.S., then Civil Surgeon of Minbu. The same day the writer called on Mr. Parry, the Deputy Commissioner, and explained to him the object of the writer's visit to Minbu. The following day the writer met Mr. Aubert, the Superintendent of Land Records, and in company with him visited the island in the Irawaddy opposite the town of Minbu, and collected specimens of all the crops growing there, which were then in flower or fruit. The following day, the 9th March, the writer collected to the west of Minbu town and in consultation with Mr. Aubert drew up a tour through the central part of the district, crossing it from East to West.

Mr. Aubert displayed keen interest in the object of the tour, and volunteered to accompany the writer on his excursion. It is owing to this fortunate circumstance that this account of the flora of Minbu

more especially on its economic side is much less meagre than otherwise it would have been, if the writer had been obliged to rely entirely on himself. Mr. Aubert understanding the Burmese language well, was most untiring in extracting information from villagers as to the uses they made of plants, and only those who have tried it can appreciate what a tax upon one's patience the extraction of even the simplest facts from a dull-brained Asiatic peasant is.

In the following itinerary of our excursion the reader is referred to the map, whereon the route is shown in red and the halting places indicated by a cross. Having laid in a stock of provisions we left Minbu on the evening of the 10th March, travelling all night in aggressively creaking bullock-carts. This, although a primitive and—in the present stage of evolution of the Burmese cart and the Minbu 'roads'—a truly penitential mode of locomotion served our purpose probably better than any more rapid way of travelling would have done. Our route at first followed the right bank of the Irawaddy, which we skirted all night until at dawn we reached Semon. There we engaged a fresh relay of carts to convey our baggage to Khwé-thé by road, while we marched along the river bank collecting as we went, until we arrived at Khwé-thé after noon. It now being exceedingly hot we halted at Khwé-thé for the remainder of the day, taking shelter in a 'Zayat' or bamboo shed. In the evening we left Khwé-thé and travelling again all night in bullock carts arrived at Sinbok at dawn on 12th March. That same morning we marched to Paunglin lake, and after collecting there what we could, returned to Sinbok about noon. We halted at Sinbok for the remainder of that day and the following day collecting and changing and drying paper. On the morning of 14th March we left Sinbok and struck North-Westwards for Pyogingon, where we arrived the same day. We spent that day and the following at Pyogingon, collecting in the neighbourhood, and left on the evening of the 15th March for Salin, arriving at the latter place early on the morning of the 16th March. Salin is the most important town in the district as far as size and trade are concerned being considerably larger than the town of Minbu from which it is distant about forty miles by road. Near Salin is a fairly large lake—not shown in the map—where we collected from a dug-out what acquatics we could find. In the evening we left Salin for Gwingyin, a name not shown in the map but the position of which is roughly indicated on the route by the cross south of Kontha. We halted at Gwingyin on the 17th and 18th March, collecting in the region around. On the evening of the 18th March we left for Myaung-u, also not shown in the map but indicated by the cross on the route a little to the east of

Chonlo and just north of the 20° 30′ line of latitude. We arrived at Myaung-u on the morning of the 19th March and we halted there for that day and the following. Here for the time being we had to forsake our carts, as we had now arrived at the outermost ridges of the Arracan Yomahs into which at this point no cart road penetrated at the time of our visit, although one was being made. Accordingly we arranged with the headman of Myaung-u for coolies to carry our baggage, and on the morning of the 20th March we started to march the fourteen miles along and across the Nwamadaung hills to Sidoktaya (Sedoktea) in the Mon valley, which we reached at nightfall. The following day was spent at Sidoktaya, collecting and changing paper. On the 22nd March we marched from Sidoktaya to the Chin village of Kan, situated at about 3,000 feet elevation on the Eastern flank of the Arracan Yomahs.

We halted at Kan village for the 23rd and 24th March, collecting in the neighbourhood and marched down again to Sidoktaya on the 25th, halting there for that day. The following day we stowed ourselves and servants and luggage into two lumbering dug-outs, and proceeded down the Mon river, reaching Monmyin at nightfall. Another day's perfunctory tugging at the makeshift oar on the part of our boatmen landed us at Okpho, where we forsook the river and travelled by night in bullock carts to Legain. There we had an hour or two's rest and then pushed on to Sagu, where we obtained a fresh relay of carts, which brought us into Minbu that same evening the 28th of March. The writer then remained at Minbu for three days, assorting the collections and packing them up. On this being finished he left Minbu on 1st April, arrived at Rangoon on 3rd April, left the latter place on 6th April and arrived in Calcutta on the 9th April. The whole excursion occupied just six weeks, of which more than a fortnight was spent in travelling from Calcutta to Minbu and returning from Minbu to Calcutta. The itinerary succinctly shown is as follows:—

27th February 1903	. .	Left Calcutta.
28th " "	. .	at sea.
1st March "	. .	
2nd to 4th " "	. .	at Rangoon.
5th to 7th " "	. .	Rangoon to Minbu.
7th to 10th " "	. .	at Minbu.
11th " "	. .	Minbu to Sinbok.
12th to 13th " "	. .	at Sinbok.
14th to 15th " "	. .	at Pyogingon.
16th " "	. .	at Salin.
17th to 18th " "	. .	at Gwingyin.
19th " "	. .	at Myaung-u.

20th	March	1903	Myaung-u to Sidoktaya.
21st	„	„	at Sidoktaya.
22nd	„	„	Sidoktaya to Kan.
23rd to 24th	„	„	at Kan.
25th	„	„	Kan to Sidoktaya.
26th	„	„	Sidoktaya to Monmyin.
27th	„	„	Monmyin to Legain.
28th	„	„	Legain to inbu.
29th to 31st	„	„	at Minbu.
1st to 3rd	April	„	Minbu to Rangoon.
4th to 5th	„	„	at Rangoon.
6th to 8th	„	„	at sea.
9th	„	„	arrived in Calcutta.

The writer is glad to end this brief account of his tour by expressing his obligations to Mr. Gaitskell, I.C.S., Director of Land Records and Agriculture, Burma; to Mr. Parsons, I.C.S., who kindly presented the writer with a copy of the Settlement Report of the district of Minbu, written by Mr. Parsons himself, wherein the writer found information which otherwise he would not have obtained; to Mr. Parry, the Deputy Commissioner of Minbu; to Captain Fenton I. M. S., the writer's host while in Minbu itself; and especially to Mr. Aubert, the Superintendent of Land Records, who rendered such excellent service on the tour itself.

CHAPTER II.—TOPOGRAPHY OF THE DISTRICT.

The district of Minbu is a rhomboidal shaped tract, bounded on the east by the river Irawaddy, on the west by the mountain range which separates the district from Arracan and is known as the Arracan Yomahs. The north and south boundaries are not naturally defined, but the district extends from about 19° 48′ N. to about 21° N. measured along the 94° 30′ E. line of longitude, which practically forms one of the diagonals of the rhomboid, the other diagonal running from the intersection of 20° N. latitude with 95° E. longitude to the intersection of 21° N. latitude with 94° E. longitude.

The length of the district due north and south is about 80 miles, its greatest breadth 50 miles. The total area is over 3,000 square miles. The district is divided naturally into three meridional zones very distinct alike in their physical and vegetative characters.

These are :—

I.—A mountainous zone roughly forming the western third of the district and comprising the eastern flanks of the Arracan Yomahs and a very distinct narrow range of low hills running from north to south of the district closely parallel with and a few miles to the east of the

main chain of the Yomahs, and referred to throughout this paper as the Nwamadaung Hills. The Arracan Yomahs geologically belong—as do all the Minbu rocks—to the tertiary period, and deposits of fossil wood are not uncommonly met with The chief summits of the range in the district reach an altitude of over 6,000 feet and the range is forest clad throughout. The Nwamadaung hills are not named on the map but are readily recognised thereon as a well defined narrow range, single for the greater part of its length but showing a double contour for some distance just north of 20° N. latitude and again just north of 20° 30′ N. latitude. Part of the route traversed runs along the crest of the ridge just south of 20° 30′ N. latitude. The general altitude of the range appears roughly to be about 1,000 feet. It is clad entirely with deciduous forest. Between the main chain of the Arracan Yomahs and the Nwamadaung hills lies a narrow trough or valley,—at Sidoktaya about four to six miles wide—in which the waters of the Mon and Man rivers flow before breaking through the Nwamadaung hills to make their way to the Irawaddy.

II.—A narrow flat alluvial belt or strip about four to five miles wide fringing the western bank of the Irawaddy from a little north of Minbu town to the northern boundary of the district.

III.—A zone which for lack of a more precisely descriptive term is described throughout this paper as the desert zone. This constitutes the larger part of the district and extends from the Nwamadaung hills to the alluvial belt, north of Minbu town and to the banks of the Irawaddy south of Minbu town. The breadth of this zone varies from twenty to thirty miles. Its surface is abrupt and broken westwards, but becomes more undulating as one travels eastwards until it merges into the alluvial belt. South of Minbu town this zone continues abrupt up to the Irawaddy.

The district is drained by three rivers, the Salin, Mon, and Man. The Salin arises in the north-west corner of the district, at first runs in a south-easterly direction and then sweeps round to the north-east before debouching into the Irawaddy. The Mon river drains the central portion of the district. It arises on the eastern slopes of the Arracan Yomahs, and flows for some distance between the Yomahs and the Nwamadaung hills until it emerges into the desert zone, across which it meanders with many windings in a north-easterly direction, finally turning to the south-east before it falls into the Irawaddy. It is navigable for country boats as far up as Sidoktaya. The Man river has its source in the south-west corner of the district, the southern portion of which it drains.

It flows mainly in a north-easterly direction, joining the Irawaddy just north of Minbu town. These three rivers are bordered on each side by a narrow alluvial belt, of course on a very much smaller scale than the main one bordering the Irawaddy, but practically westward prolongations of that belt traversing the desert zone. These secondary alluvial belts are more evident along the Mon river than along the other two rivers, as irrigation is or until recently was not practised along the Mon river. The Salin and Man rivers by virtue of their irrigation works cut out two castles from the desert zone, which, albeit they do not quite blossom like the rose, contrive to support a moderate burden of crops and vegetables. The Salin irrigated area is somewhat triangular in outline, the base of the triangle extending roughly from the south end of the Paunglin lake just south of 20° 30′ N. latitude to just a little north of the Salin river as it passes into the alluvial belt. The southern boundary begins at Paunglin lake and skirts the low hills till it reaches the Salin river about Leywa. The northern boundary follows the Salin river, skirting the base of the low hills just north of the river. The western angle of the triangle is really not closed, for the irrigated tract follows both banks of the Salin as a narrow strip on each side for a long way. The Man irrigated tract is bounded on the south by the Man river, on the east by the part of the Irawaddy alluvial belt, between the Man and Mon rivers; on the north partly by the Mon river for a very short distance, but chiefly by the low hills south of the Mon; on the west by the low hills of the desert zone which ultimately approach close to the north bank of the Man river. Both those irrigated tracts are easily recognised on the map by being devoid of hills and in being crowded with village names, Salin being the chief town in the Salin area, and Legain in the Man area.

There are the ordinary three well marked seasons during the year, the cool season lasting from the beginning of November to the end of February, the hot season extending from March to May, and the rainy season normally from May to October, though it may come on a month earlier and cease a month earlier. During the cool season the temperature may drop at night as low as 50° F. and during the hot season may reach as high as 115° F. During the latter period hot winds blow, shrivelling up the face of the land and making their effects not only felt by the European resident but also too visible to him in the way in which the covers of his books curve backwards as if in a desperate attempt to dehisce their contents. Still, existence during the hot season is not unbearable as the heat is unaccompanied by moisture, while life during the rainy season is quite tolerable and in

the cool season pleasant. The annual rainfall on the Arracan Yomahs may reach 100 inches, at Sidoktaya in the Mon valley it varies from 45 to 70 inches, at Minbu town from 20 to 40 inches, and at Salin from 14 to 40 inches. During the hot season the Salin river practically dries up, and only a little water remains in the Man river. The Mon river, as already mentioned, remains navigable to country boats as far up as Sidoktaya.

CHAPTER III.—SKETCH OF THE VEGETATION.

The following is more an attempt to record the writer's impressions of what was at best but a hasty rush across the district, than an endeavour to give a complete sketch of the vegetation thereof, which would require a much longer stay,—extending over the three seasons—than the writer was able to afford.

At the time of our tour the hot season had set well in, and the conditions normal to it were prevailing, and it is more properly the aspect of the vegetation during that period that is described below.

It is cause for regret that our excursion to the Arracan Yomahs was so short, but official duties compelled our return to Minbu before the close of the Government financial year on the last day of March. This vexing lack of time explains to some extent the sadly deficient account of the Yomah vegetation.

The Nwamadaung range where we traversed it is covered with fairly open deciduous forest, which the writer, if following Kurz's classification set forth in his "*Preliminary Report on the Forests and Vegetation generally of Pegu,*" would describe as an upper mixed forest. At the time of our visit almost all the trees were leafless, and there was in consequence a total absence of shade against the burning rays of an almost vertical sun, which rendered our march across the range distinctly fatiguing. The trees composing the forest are of medium height and of many different species. Amongst the more common and conspicuous are *Shorea siamensis*—Ingen or Ingyn of the Burmese—, a species of *Bombax* with a fruit of large diameter which Kurz appears to have considered—erroneously as it seems to the writer—*Bombax insignis*, *Millettia pendula*, *M. Brandisiana*, *Dalbergia cultrata*, *D. paniculata*, *Pterocarpus macrocarpus*, *Cassia renigera*, *Cassia timoriensis*, *Bauhinia polycarpa*, *B. variegata*, *Xylia dolabriformis*, *Terminalia tomentosa*, *Anogeissus acuminata var. lanceolata*, *Lagerstræmia tomentosa*, *Gardenia erythroclada*—very noticeable with its peculiar cinnamon brown bark,—many *Bignoniaceæ*, such as *Oroxylum indicum*, *Dolichandrone stipulata*, *D. Rheedii*, *Heterophragma sulfureum*,

H. adenophyllum, *Stereospermum chelonoides*, *Tectona grandis*, *T. Hamiltoniana*, the latter very common, several species of *Vitex* and *Holoptelea integrifolia*.

Climbers and twining plants are represented by such species as *Millettia cana*, *M. cinerea*, *M. auriculata*, *Canavalia ensiformis*, *Mucuna pruriens*, *Spatholobus Roxburghii*, *Butea superba*, *Pueraria Wallichii*, *Atylosia scarabæoides*, *Cylista scariosa*, *Derris scandens*, *Bauhinia diphylla*, *Combretum chinense*, *C. extensum*, *Hodgsonia heteroclita*, *Alsomitra sarcophylla*, *Cryptolepis Buchanani*, *Lettsomia setosa*, *Pharbitis Nil*, *Ipomœa Turpethum*, *Thunbergia laurifolia*, *Symphorema involucratum*, *Congea tomentosa*, and several species of yams as *Dioscorea dæmona*, *D. pentaphylla*, *D. decipiens*, *D. alata*, etc.

The shrubby undergrowth at the time of our visit was very scanty, and was constituted chiefly by species of *Leguminosæ*, *Compositæ* and *Acanthaceæ*, such as *Crotalaria albida*, *C. neriifolia*, *C. tetragona*, *Indigofera Wightii*, several species of *Desmodium*, *Rhynchosia*, *Flemingia fluminalis*, *Vernonia teres*, *Inula Cappa*, *Wedelia Wallichii*, *Dædalacanthus macrophyllus*, *D. tetragonus*, *D. purpurascens*, *Hemigraphis glaucescens*, *Barleria strigosa*, *Neuracanthus tetragonostachys*, *Cystacanthus insignis*, as well as a few species belonging to other orders such as *Blinkworthia lycioides*, *Baliospermum axillare*, *Sarcochlamys pulcherrima*. The common bamboo is *Dendrocalamus strictus*. The water courses were almost entirely dry save for infrequent small, green and evil smelling pools, and strewn with fossiliferous boulders, amongst which *Homonoia riparia* appeared to flourish despite depressing circumstances.

The herbaceous vegetation when we were trudging through the forest was practically non-existent, the soil baked and glaring with heat. Nevertheless even on this unsympathetic stratum we picked up a few struggling herbs, such as *Sida mysorensis*, *S. rhombifolia*, *Urena lobata*, *U. sinuata*, *Hibiscus pungens*, *Melochia corchorifolia*, *Triumfetta annua*, *Elephantopus scaber*, *Cyathocline lyrata*, *Blumea glomerata*, *B. laciniata*, *B. membranacea*, *Laggera flava*, *L. pterodonta*, *Vicoa auriculata*, *Emilia sonchifolia*, *Canscora diffusa*, *Nelsonia campestris*, *Ocimum Basilicum*, etc.

The above are the chief positive features of the Nwamadaung hills vegetation. A marked negative feature is the absence of palms and orchids.

The lower slopes of the Arracan Yomahs up to between 2,000 and 3,000 feet are covered with practically the same forest as clothes

the Nwamadaung range, with minor differences. *Bignoniaceæ* and the species of *Tectona* are less prominent. *Terminalia tomentosa* is very common, while *Terminalia pyrifolia* and *T. Oliveri* also occur. Other trees met with on the ascent to Kan village in addition to those mentioned as occurring on the Nwamadaung hills are *Sterculia colorata*, *Garuga pinnata*, *Sapindus Mukorossi*, *Buchanania latifolia*, *Melanorrhœa usitata*, *Mæsa indica*, *Schrebera swietenioides*. The shrubby vegetation is to all intents the same as that of the Nwamadaung range, *Compositæ* and *Acanthaceous* species predominating. Here and there along the steep hill track occur clumps of tall grasses, chiefly such species as *Thysanolæna agrostis*, *Saccharum spontaneum*, *Erianthus longisetosus*, *E. Hookeri* and *Neyraudia madagascariensis*. *Dendrocalamus strictus* and another bamboo are common. The climbers and herbaceous vegetation are represented by the same species as are found on the Nwamadaung hills.

Beyond and above the village of Kan—that is above 3,000 feet elevation—the deciduous forest gives place to an evergreen forest. The chief trees above this elevation so far as we had time to discover are *Dipterocarpus tuberculatus* (the Eng of the Burmese), *Duabanga sonneratioides*, *Quercus Lindleyana*, *Q. dealbata*, and *Castanopsis tribuloides*, all very common. Other characteristic but less common trees are *Taraktogenos Kurzii*, *Cedrela Toona*, *Semecarpus albescens*, *Pygeum acuminatum*, *Eriobotrya bengalensis*, *Tupidanthus calyptratus*, *Diplospora confusa*, *Cinnamomum Tamala*, *C. obtusifolium*, *Engelhardtia Colebrookiana*, *Ficus glomerata*, *Baccaurea sapida*, etc. The climbers comprise such species as *Clematis grewiæflora*, *Naravelia zeylanica*, *Ventilago calyculata*, *Entada scandens*, *Derris scandens*, etc. The undergrowth consists chiefly of such shrubs as *Vaccinium bancanum*, *Ardisia humilis*, *Ligustrum robustum*, many species of *Acanthaceæ*, *Premna latifolia*, *Clerodendron infortunatum*, *Polygonum chinense*. The herbaceous vegetation is represented by such species as *Pimpinella Leschenaultii*, *Rubia angustissima*, many *Composites* and *grasses*, and some *Scitamineæ*, and *Ferns*.

The flat alluvial belt along the Irawaddy is for the most part under cultivation, the chief crops being rice, maize and a great variety of pulses and cucurbitaceous plants. At the time of our tour the rice-fields were bare but for tufts of stubble, and the soil caked into polygonal blocks of stony hardness resembling the tops of basalt columns, with a tuft of stubble for the nucleus of each block.

Where the alluvial belt is free from cultivation it is covered with Savannah grass, the chief constituent species being *Imperata*

arundinacea. Other quite common grasses are *Imperata exaltata, Eragrostis cynosuroides, Saccharum fuscum, Andropogon serratus, A. squarrosus, A. annulatus, A. contortus, Cynodon dactylon.*

Trees are evenly but thinly scattered all over the belt, almost justifying its description as a very open Savannah forest.

Amongst those trees the more common species are *Bombax malabaricum, Butea frondosa, Parkinsonia aculeata, Streblus asper,* while others not so frequent are *Cæsalpinia Bonducella, Tamarindus indica, Adenanthera pavonina, Albissia Lebbek, Terminalia Bellerica, Lagerstræmia parviflora, Sarcocephalus cordatus.*

Here and there swampy hollows occur, which are usually fringed with a copse of such species as *Xanthophyllum glaucum, Barringtonia acutangula, Combretum trifoliatum, Butea frondosa, Arundo Donax, Phragmites Karka,* while the hollows themselves are often choked with a dense growth of *Combretum trifoliatum,* or *Polygonum stagninum.*

Villages and monasteries are thickly dotted along this fertile belt and form centres of cultivation for *Borassus flabellifer*—the Toddy Palm. This is very abundant, forming conspicuous clumps close to the villages and radiating out from them in lines, which when the villages are thickly aggregated cut the horizon in every direction, and when the villages are more sparse indicate their presence from afar. During the heat of the day the haze restricts the horizon so much, that it is only in the early morning and at sunset that the Arracan Yomahs can be seen looming towards the west. Besides the Toddy Palms there are almost always in the neighbourhood of villages and monasteries, clumps of the Coco-nut Palm, the Banyan, (*Ficus bengalensis,*) the Peepul, (*Ficus religiosa,*) the Mango (*Mangifera indica*) and the Jackfruit (*Artocarpus integrifolia*).

The shrubby element in the alluvial belt vegetation although not very conspicuous, is of a varied character. It includes such species as *Tamarix gallica,* common along the river bank and on sandy spits, several species of *Hibiscus, Thespesia Lampas, Helicteres elongata, Waltheria indica, Grewia hirsuta, Glycosmis pentaphylla,* several species of *Crotalaria, Tephrosia purpurea* exceedingly common, *Sesbania ægyptiaca, Æschynomene indica, Uraria picta, Cassia occidentalis, C. Sophera, C. Tora, C. alata, Rosa involucrata* common, *Combretum trifoliatum* very common, *Solanum torvum, S. indicum, Hygrophila spinosa* common, *Bridelia retusa, B. stipularis, Phyllanthus reticulatus, P. simplex, Jatropha gossypifolia* common, *Ricinus communis* very common.

Climbing and twining plants are, as may be imagined from the very open character of the vegetation, very few. *Tiliacora*

racemosa, *Cissampelos Pareira*, *Abrus precatorius*, several species of *Argyreia* and *Ipomœa* are the chief. *Azima sarmentosa* is not uncommon straggling over ruined pagodas.

Herbaceous species are comparatively speaking in great force in the alluvial belt. During the hot season the level of the Irawaddy is twenty feet or more below the top of its bank, leaving exposed a steep broken surface of soil. To this there clings an assemblage of humble plebeians like *Ranunculus sceleratus*, *Nasturtium indicum*, *Melilotus alba*, *Indigofera enneaphylla*, *I. trifoliata*, *Trianthema decandra*, *Mollugo Spergula*, *Grangea maderaspatana*, *Sphæranthus peguensis*, *S. africanus*, *S. indicus*, *Gnaphalium indicum*, *G. pulvinatum*, *Xanthium Strumarium*, *Enhydra fluctuans*, *Eclipta alba*, *Spilanthes Acemella*, *Coldenia procumbens*, *Lippia nodiflora*, *Digera arvensis*, several species of *Amarantus Chenopodium album*, *Polygonum plebejum*, *P. glabrum*, *P. stagninum*, *Rumex maritimus*, *R. dentatus*, several species of *Euphorbia*, *Chrozophora plicata*, *Fimbristylis dipsacea*, *Scirpus Michelianus*, *Cyperus digitatus*, etc. etc.

Away from the immediate margin of the river, the more noticeable herbaceous species are *Argemone mexicana*, which is apparently very much at home, *Cleome viscosa*, *Polygala erioptera*, *Portulaca oleracea*, *Sida veronicæfolia*, *S. acuta*, *Abutilon indicum*, very common, *Urena lobata* common, *Tribulus terrestris*, *Cardiospermum Halicacabum*, very common, *Crotalaria medicaginea*, *C. quinquefolia*, several species of *Indigofera*, *Lourea obcordata*, *Alysicarpus monilifer*, *A. rugosus*, *Desmodium triflorum*, all quite common, *Mimosa pudica*, *Dentella repens*, *Vernonia cinerea*, *V. anthelmintica*, *Ageratum conyzoides*, *Heliotropium strigosum*, *H. indicum*, *Solanum nigrum*, *Lindenbergia philippinensis*, *Vandellia crustacea*, *V. erecta*, *Bonnaya brachiata*, *Striga lutea*, *S. euphrasioides*, *S. Masuria*, *Ruellia prostrata*, *Leucas mollissima*, *L. pilosa*, *Bœrhaavia repens*, *Ærua javanica*, very common, *Achyranthes aspera*, *Alternanthera sessilis*, *Polygonum plebeium*, *P. lapathifolium*, *Euphorbia pilulifera*, *E. thymifolia*.

In the moist hollows already alluded to, *Coldenia procumbens* and *Gnaphalium pulvinatum* are always to be remarked, the latter especially noticeable from the never absent globules of water bedecking its woolly surface.

The vegetation of the irrigated areas is intermediate in character between that of the alluvial belt and that of the desert zone. The Savannah grass is practically absent, and the ground when it is not under crops is covered with such weeds as *Bergia ammannioides*, *Desmodium triflorum*, *Alysicarpus monilifer*, *Tribulus*

terrestris Indigofera enneaphylla Gnaphalium, Coldenia procumbens, Striga Ruellia, Lippia, Achyranthes Polygonum plebejum Euphorbias and various species of grasses Very common shrubs are *Tephrosia purpurea Flemingia lineata* and *Calotropis procera* The trees belong to the same species as those found in the alluvial belt

The alluvial belt vegetation is prolonged along the banks of the three rivers of the district where the dry hills of the desert zone do not approach the banks and cut it off This secondary alluvial belt vegetation is most distinct along the Mon river

The desert zone where it borders on the irrigated areas and alluvial belt shows an undulating surface, which gradually becomes more rugged and hilly as one travels westwards until the rampart of the Nwaradaung range is encountered The vegetation of this zone is very characteristic consisting of a comparatively small number of mixed gregarious species which constitute in the true classical sense of the adjective a horrid scrub At Gwingyin the general impression is of a wilderness of thick but not impenetrable jungle, consisting chiefly of shrubs which are almost all armed with spines and prickles of diverse form and size but alike malignancy One of the chief constituents of this ill favoured flora very common and conspicuous is *Zizyphus Jujuba* the so called wild plum of the district. The whitish colour of the under surface of the leaves of this plant gives it at a distance when a breeze ruffles its foliage a peculiarly deceptive appearance of being laden with white blossoms *Gardenia turgida* is another very common plant of this zone, of a very characteristic aspect Its almost leafless habit, its branch spines like miniature bayonets and its silvery grey bark give it a curiously spectal appearance *Euphorbia antiquorum* is another exceedingly common plant often attaining the dimensions of a fair sized tree with a well developed trunk *Calotropis procera* is also very abundant The shrubby vegetation is represented by an abundance of species of *Capparis* such as *Capparis grandis, C burmanica, C horrida, C flavicans, C hastigera, C polymorpha* and by species of other genera less conspicuous such as *Corchorus fascicularis, C acutangulus, Tephrosia purpurea, Flemingia lineata, Combretum apetalum, Barleria Prionitis* etc Apocynaceous and Asclepiadaceous climbers are fairly common These from their intimate entanglement with their armed supports are themselves able to dispense with spines and prickles, though even without the aid of their involuntary allies the milky juice which most of them contain would probably render them not very palatable to deer or cattle During the rainy season *Gloriosa superba* is said to appear in great

profusion. No doubt its poisonous properties efficiently protect it. The herbaceous vegetation is scanty in the extreme and is made up mainly of such unattractive carpeting as *Solanum xanthocarpum*, *Tribulus terrestris*, *Martynia diandra*, *Bœrhaavia repanda*, *Ærua javanica*, *Achyranthes aspera*, *Polygonum plebejum*, etc. Trees are very few. At Gwingyin isolated individuals of *Acacia leucophlœa* and *Albissia Lebbek* stood out from the desert of dusty grey scrub, the former conspicuous by its bright green foliage and the only thing pleasant to look upon amidst the dreary vegetation and intolerable glare, the latter leafless and laden with dry pods which rattled against each other in the breeze like pagoda bells. Indeed it does not seem improbable that the rattling of these pods in the breeze may have suggested the idea of the bells. The broken hilly ground to the westwards and near Minbu itself supports the same kind of vegetation as has just been described as prevailing at Gwingyin, but much more sparsely, so that the hills have a general aspect of utter sterility. On the soil cast out from the mud-vulcanoes near Minbu town not a vestige of vegetation is to be seen There is a complete absence in the desert zone of the toddy and coco-nut palms, as well as of the other trees commonly found about villages in the alluvial belt and irrigated areas. The only palm found in the desert zone was a variety of *Phœnix humilis*. The *Tamarind* is planted near the few villages found in this zone and a species of Cereus is grown as a hedge, reaching a height of fifteen feet or more. The vegetation of the desert zone appears to resemble in general aspect, if not in detail, the vegetation of Eastern Rajputana as described by Sir George King. Most of the genera described by him as occurring in Eastern Rajputana also occur in the Minbu desert zone. Many of the species are identical for the two districts so wide apart, and where the species are not identical they are representative of each other.

In the Mon valley between the Nwamadaung hills and the Arracan Yomahs there is a mixed sort of vegetation partaking of the characters of the desert zone and of the alluvial belt. A prickly scrub with *Zizyphus Jujuba* for its chief constituent predominates, but the herbaceous vegetation is more like that of the alluvial belt and the toddy and coco-nut palms reappear in abundance.

Along the shores of the Salin and Paunglin lakes abound such species as *Jussiæa repens*, *J. suffruticosa*, *Ipomœa aquatica*, *Herpestis Monniera*, *Polygonum stagninum*. Fringing the margin are found *Cyperus radiatus*, *Juncellus alopecuroides*, *Scirpus articulatus*, *Cyperus platystylis*, *Bootia cordata*, *Monochoria hastæfolia*, *Typha elephantina*, *Limnophyton obtusifolium*. Within and mixed

up with the fringe of sedges *Pistia Stratiotes* occurs in great abundance, as well as *Nymphæa Lotus, N. stellata, Nelumbium speciosum, Limnanthemum indicum, Utricularia flexuosa, U. exoleta, Ceratophyllum demersum, Hydrilla verticillata, Vallisneria spiralis, Lemna polyrhiza, Wolffia arrhiza, Potamogeton indicus, Azolla pinnata, Marsilea quadrifoliata*, etc. In Salin lake miniature floating islands composed chiefly of *Cyperus platystylis* and *Eleocharis capitata* are common.

The exposed sand banks and sandy spits of the Irawaddy are absolutely devoid of vegetation save for an occasional tamarisk.

The foregoing account makes it evident that there are well marked and in the main very natural differences in the character of the vegetation of the three zones. Those differences, however, are probably not all of precisely equal value. There can be no question that the difference between the flora of the Arracan-Nwamadaung zone and that of the desert zone is entirely natural and dependent on the difference of altitude of, and the different climatic conditions prevailing in the two zones. The difference between the desert zone and alluvial belt floras is also in essentials a natural one, but, less due to purely climatic causes, as the elevation and rainfall are practically the same for both zones. The determining factor of the difference in this case is the Irawaddy. Its waters permeate the alluvial belt and allow many species, especially those of a herbaceous habit, to flourish, which could not exist or at least would have a very hard struggle for life beyond the zone of its beneficent influence. Amongst such species may be mentioned *Ranunculus sceleratus, Cardiospermum Halicacabum. Melilotus alba, Grangea maderaspatana, Xanthium Strumarium, Vandellia, Rumex, Rosa involucrata, Combretum trifoliatum, Xanthophyllum glaucum*, and many *Cyperaceæ* and *Gramineæ*.

There is no doubt also that the influence of the Irawaddy acts in the opposite direction in being unfavourable to the spread of typically xerophilous plants such as *Euphorbia antiquorum* and the various species of *Capparis* from the desert zone on to the alluvial belt. One, however, must not lay too much stress on this aspect of the Irawaddy's influence, as another factor—human agency—interferes here. It is probable that a good few species typical of the desert zone would not find even under absolutely natural conditions the alluvial belt by any means a congenial habitat and would probably decline to grow there. On the other hand, there is no doubt that some species have to put up with life in the desert zone not necessarily because they prefer it, but because the human cultivators

of the alluvial belt strongly discourage any attempt of such species to gain a footing thereon. The discouragement may be direct, by rooting out such plants as *Zizyphus Jujuba*, or such atrocious weeds as *Tribulus terrestris* or *Martynia diandra*, or indirect by simply occupying the ground with crops. As may be imagined, the demarcation between the two zones is by no means a clear cut line, the two floras mixing to a certain extent where the influence of the Irawaddy fades away. The passage from the one vegetation to the other is of course still more gradual where the irrigated areas intervene.

Excluding cultivated species, such as the various kinds of pulses and cucurbitaceous plants and cereal crops, etc., the number of Phanerogams collected is about 700 species, the number of Cryptogams collected being so few as to be practically a negligible quantity. Nearly half the number of species were collected by Mr. Aubert and the writer and the remainder by the garden collector Shaik Mokim, who spent about five months in the district. On the not unreasonable assumption that these 700 species afford a fair representation of the vegetation of the district, an analysis of the collection should elucidate to some extent the distributional affinities of the flora of the district.

As the differences in the vegetation of the three zones of the district roughly sketched above are sufficiently striking to impress even the most casual non-botanical traveller, it is evident that to consider the whole district as a unit and to analyse the collection in that light would lead to very misleading results.

Accordingly the Arracan-Nwamadaung zone, the alluvial belt, and the desert zone collection have been separately analysed, and the results tabulated in percentages in the table given below. The fourth column shows the erroneous inferences as to the affinities of the flora of the district which might be drawn if the district were considered as a homogeneous unit. Geographically the district of Minbu comes within Major Prain's Assam-Arracan sub-sub-area. Phyto-geographically however only the westernmost portion of the district comprised by the Arracan-Nwamadaung zone can be considered as belonging to that sub-sub-area. The inclusion of the desert zone and alluvial belt plants would merely involve a purely fictitious additi on, in the case of the former of Deccan and African species, and in the case of the latter of African and cosmopolitan tropical species. The area and sub-sub-areas mentioned in the table are in the main sufficiently indicated by their names. It may not, however, be amiss to state more precisely the boundaries of the Deccan, Indus plain and Gangetic plain sub-sub-areas. They are the sub-sub-areas recognised by Sir Joseph

Hooker in his recent sketch of the flora of British India written for the Imperial Gazetteer, and they are defined by him as follows:—

I.—The Indus plain includes "the Punjab, Sind, Rajputana west of the Aravalli range and Jumna river, Cutch and Gujarat."

II.—The Gangetic plain extends "from the Aravalli hills and Jumna river to Bengal, the Sundarbans, the plain of Assam, the low country of Orissa north of the Mahanadi river."

III.—The Deccan includes "the whole comparatively dry elevated tableland of India east of Malabar and south of the Gangetic and Indus plains, together with the Coromandel coast." It is practically what is meant by "Peninsular and Central India" in the list of species in this paper.

The respective proportions of the collection furnished by the three zones of the district are approximately:—

Arracan-Nwamadaung plants	45·6 per cent.
Desert zone plants	8·4 „ „
Alluvial belt plants	46·0 „ „

This, however, in all probability does not represent accurately the true percentage of the three zones. The writer, as already mentioned, had to be content with the merest glimpse of the Arracan Yomahs, and as it is much easier to collect specimens on the plains than to climb up very steep slopes in search of them, there is little doubt that the native plant collector distributed his energies accordingly. It is for instance incredible that seven species of orchids are a fair representation of the prevalence of that order in the Arracan Yomahs. It is therefore not inadmissible to assume that, if the Arracan-Nwamadaung zone were as fully botanized as the other two zones have probably been that the percentage of the former element in the vegetation of the district would rise considerably and the percentages of the latter two correspondingly fall. Further it is exceedingly probable that a considerable number of species collected in the alluvial belt also occur in the desert zone, but were not re-collected in the latter for the reason that they had been already collected in the alluvial belt. Consequently it must not be forgotten that the figures given are at best but a mere approximation to the true proportions of the various elements in the flora of the district.

Considering the vegetation of the zones in more detail we find that the Arracan-Nwamadaung zone shows a distinct endemic element—amounting to about 5 per cent. of the species collected in that zone—restricted to the Assam-Arracan sub-sub-area. Most of the species comprising this endemic element are new or presumably new and are

Vitis Aubertiana, Indigofera minbuensis, Millettia cana, Desmodium grande, D teres, Derris pulchra, Terminalia Oliveri, Vernonia sp. Diospyros sp. Lettsomia campanuliflora, Ipomœa lancifolia, Justicia kkasiana, Habenaria yomensis, Curcuma sessilis, C. parvula, Typhoniumpedatisectum. Purely Burmese—including Tenasserim—species form 20·33 per cent. in which a Shan hills contingent is predominant.

Next in importance come those species common to India and Malaya 11·56 per cent. closely followed by species which are found in China as well as in India and Malaya, 10·4 per cent. Indian species come next with 9·4 per cent., then purely Malayan species with 7 per cent. Purely Himalayan species are fairly well represented by 6·56 per cent. which also indicates the force of African to Australian species. The percentage of Deccan species offers a remarkable contrast to the percentage of Deccan species in the desert zone.

The alluvial belt, as might be expected, has a great predominance of general eastern tropical and cosmopolitan tropical species, which are followed a long way behind by Indo-African species. The endemic Upper Burma element is very small.

The desert zone shows a considerable percentage—18·6—of endemic Upper Burma species. The most striking feature, however in the vegetation of this zone is the preponderance of Deccan and Indo-African species. This preponderance is no doubt exaggerated in the table based on this collection only, but the two elements together probably form at least about a fourth of the whole vegetation of the zone, contrasting strongly with the meagre show they make in the other two zones. How to account for the presence of such a comparatively large percentage of Indo-African species is an interesting problem. One knows that the presence of a considerable African element in the Indian Peninsula is explained by the existence of a land connection with Africa in pre-tertiary times. Whether one can suppose the existence of a similar land connection between Upper Burma and the Western Peninsula before the formation of the Arracan Yomahs in tertiary times is a question for geologists to settle.

Mr. C. B. Clarke explains the presence of the Malayan or Eastern element in the flora of India by a direct connection between the Malay Peninsula and Ceylon and the South Malabar mountains. It is conceivable that the Indo-African element in the Minbu desert zone is but the remnant of a flora once common to both Peninsulas and Africa, but driven northwards by the breaking up of land surfaces in the Eastern Peninsula and the consequent change of climate from dry to moist in the southern half of the Burma-Malaya Peninsula.

This, however, is mere speculation, but meanwhile the results of the analysis of the collection would appear to justify the separation of the upper Irawaddy valley between the Arracan Yomahs and the Shan Plateau, as a distinct sub-sub-area of distribution.

Distribution areas.	Arracan Nwamadaung. Per cent.	Desert Zone. Per cent.	Alluvial Belt. Per cent.	Whole district Per cent
Endemic to Assam Arracan	5	...	...	2·28
Distributed to Ava and Pegu	5	18·60	1·24	4·43
„ „ the Shan Hills	6·25	3·93	0·62	3·43
„ „ Tenasserim	4·38	...	0·93	2·43
„ „ the Shan Hills and Tenasserim	4·7	...	...	2·14
„ „ Malaya	7	...	1·86	4·00
„ „ China	...	6·72	·93	1·00
„ „ China and Malaya	...	...	1·00	0·43
„ „ Himalaya and Malaya	1·56	...	·41	0·86
„ „ Himalaya and China	2·5	...	·32	1·30
„ „ Himalaya, Malaya and China	1·25	...	...	0·57
„ „ Himalaya only	6·56	...	·31	3·14
„ „ Deccan sub-sub-area	2·86	18·60	1·55	2·86
„ „ Deccan, Indus and Gangetic plains	4·7	...	3·30	4·30
„ „ Deccan, Gangetic plains and Malaya	4·38	...	2·58	3·14
„ „ throughout India	9·4	8·64	4·66	7·50
„ „ India and Malaya	11·56	8·71	4·44	8·00
„ „ India and Malaya and China	10·40	1·60	4·66	7·20
„ from India to Australia	3·44	8·71	5·90	5·30
„ to Africa and India	...	13·60	7·76	4·70
„ from Africa to Malaya or Australia	6·56	6·96	30·53	17·56
„ throughout the tropics	2·5	3·93	27·00	13·43
TOTALS	100	100	100	100

An analysis of the collection from the systematic standpoint reveals the following results. The proportion of Monocotyledons to Dicotyledons in the three zones and in the whole district is as follows:—

Zones.	Monocots.	Dicots.
Arracan-Nwamadaung zone	1	6
Desert zone	1	20
Alluvial Belt	1	3
Whole district	1	4·5

The ten most important orders in the three zones and in the district as a whole are as follows, in their order of importance judged by the number of species belonging to each order :—

Arracan-Nwamadaung.	Desert Zone.	Alluvial Belt.	Whole District.
Leguminosæ	*Capparideæ*	*Leguminosæ*	*Leguminosæ*
Acanthaceæ	*Asclepiadaceæ*	*Gramineæ*	*Gramineæ*
Gramineæ	*Leguminosæ*	*Cyperaceæ*	*Compositæ*
Convolvulaceæ	*Euphorbiaceæ*	*Compositæ*	*Malvaceæ*
Compositæ	*Tiliaceæ*	*Euphorbiaceæ*	*Acanthaceæ*
Rubiaceæ	*Rhamnaceæ*	*Malvaceæ*	*Euphorbiaceæ*
Cucurbitaceæ	*Malvaceæ*	*Amarantaceæ*	*Convolvulaceæ*
Verbenaceæ	*Solanaceæ*	*Scrophularineæ*	*Cyperaceæ*
Euphorbiaceæ	*Acanthaceæ*	*Acanthaceæ*	*Cucurbitaceæ*
Labiatæ	*Rubiaceæ*	*Solanaceæ*	*Rubiaceæ*

Of the Arracan-Nwamadaung decad *Verbenaceæ* and *Labiatæ* are unrepresented in the district decad. Of the Alluvial Belt decad *Amarantaceæ*, *Scrophularineæ* and *Solanaceæ* are absent from the district decad. Of the desert zone decad only the 3rd, 4th, 7th, 9th and 10th orders are present in the district decad. Of the collection as a whole *Leguminosæ* is by far the largest order, having 49 genera and 145 species. A long way after it comes *Gramineæ* with 37 genera and 73 species, then *Compositæ* with 25 genera and 37 species, then *Malvaceæ* with only 8 genera but 31 species, followed by *Acanthaceæ* with only 30 species in no fewer than 20 genera; *Euphorbiaceæ* with 16 genera and 28 species, *Convolvulaceæ* with 10 genera and 28 species, *Cyperaceæ* with 9 genera and 21 species, *Cucurbitaceæ* with 15 genera and 18 species, *Rubiaceæ* with 13 genera and 18 species.

Including cultivated species the whole collection comprises 101 Natural orders, 456 genera and 787 Phanerogamic species. 28 orders are represented by one species each, 14 by two genera and two species each, and the rest outside the first decad by genera and species in varying proportions. It is worthy of note that *Melastomaceæ* is entirely unrepresented and *Myrtaceæ* only by one wild species.

CHAPTER IV.—SYSTEMATIC CENSUS.

The following list includes all the plants identified whether collected by Mr. Aubert and the writer or by the garden collector, and whether they are indigenous or introduced, wild or cultivated. New species or species not mentioned in the Flora of British India, and new localities or localities not mentioned in the Flora of British India are distinguished by an * prefixed to them. Where the native collectors' locality is unrecognisable, the term "Minbu district" is given. For unfailing help in identifying troublesome species as well

as for other aid the writer is, as heretofore, under special obligation to Major Prain. He is further indebted to Mr. C. B. Clarke who kindly compared at Kew or had compared by the Herbarium staff there, the new or doubtful species.

THALAMIFLORÆ.

I.—RANUNCULACEÆ.

1.—Clematis Linn.

1. ***Clematis grewiæflora** DC.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalaya, Burma.

2. Naravelia DC.

2. ***Naravelia zeylanica** DC.

Arracan Yomahs.

DISTRIBUTION.—S. and W. India, Bengal, Assam, Burma, Ceylon, Java.

3. Ranunculus Linn.

3. ***Ranunculus sceleratus** Linn.

Burm. *Tanga-ngayok.* Common on moist spots along the Irawaddy bank.

DISTRIBUTION.—N.-W. Frontier, Upper Gangetic plain, Bengal, N.-W. Himalaya, Assam, Burma, China, Central Asia, Europe, N. America.

II.—ANONACEÆ.

4. Anona Linn.

4. **Anona squamosa** Linn.

Cultivated in the district.

DISTRIBUTION.—Cultivated throughout India and Burma, Native to Tropical America.

5. Miliusa Leschenault.

5. **Miliusa Roxburghiana** Hook. f. & Thomson.

Legain.

DISTRIBUTION.—Sikkim, Assam, Chittagong and Burma, Malay Peninsula.

III.—MENISPERMACEÆ.

6. Tinospora Miers.

6. **Tinospora cordifolia** Miers.

Gwingyin.

DISTRIBUTION.—Peninsular India, Central Provinces, Bengal, Sikkim, Assam, Burma, Andaman Islands, Ceylon.

7. Tiliacora Colebrooke.

7.* Tiliacora racemosa Coleb.

Sidoktaya.

DISTRIBUTION.—Peninsular India, Bengal, Burma, Ceylon, Java.

8. Cocculus DC.

8. Cocculus villosus DC.

Minbu district.

DISTRIBUTION.—N.-W. Frontier, Peninsular and Central India, Upper Gangetic Plain, Bengal, Burma, Tropical Africa.

9. Cissampelos Linn.

9. Cissampelos Pareira Linn.

Sinbok.

Burm. *Kywet-nabaung.*

DISTRIBUTION.—Throughout the tropics.

IV.—NYMPHÆACEÆ.

10. Nymphæa Linn.

10. Nymphæa Lotus Linn.

Salin lake.

DISTRIBUTION.—Throughout the plains of India and Burma, Africa, Java, Philippines, Australia.

11. Nymphæa stellata Willd.

Salin and Paunglin lakes.

Burm. *Kya-u.*

DISTRIBUTION.—Peninsular India, Bengal, Burma, Africa, Malay Peninsula, Australia.

11. Nelumbium Juss.

12. Nelumbium speciosum Willd.

Salin lake.

DISTRIBUTION.—All over India and Burma, Persia, China, Japan, Malay Peninsula and Archipelago, Australia.

V.—PAPAVERACEÆ.

12. Argemone Linn

13. Argemone mexicana Linn.

Very common except in the desert zone, where, however, it also occurs.

DISTRIBUTION.—Throughout India and Burma, West Indies, N and S. America, Africa, Ceylon, Malay Peninsula and Archipelago Australia

VI.—CRUCIFERÆ.

13. Nasturtium Br.

14. Nasturtium indicum DC.

Pyogingon

DISTRIBUTION. - Throughout India and Burma, Ceylon Malay Archipelago, Philippines, China.

14. Brassica Linn.

15. Brassica juncea Hook. f. & T

Mon valley, cultivated.

DISTRIBUTION.—Cultivated throughout India and Burma, China, and Western Asia, Africa.

Lepidium Linn.

16. Lepidium sativum Linn.

Cultivated in the alluvial belt.

Burm. *Samon-hpwe*.

DISTRIBUTION.—Cultivated throughout India and Burma, also in Tropical Africa.

16. Raphanus Linn.

17. Raphanus sativus Linn.

Cultivated in the alluvial belt.

DISTRIBUTION.—Cultivated throughout India and Burma, warm, temperate and Tropical Asia and Africa.

VII.—CAPPARIDACEÆ.

17. Cleome Linn.

18. Cleome viscosa Linn

Sami valley.

DISTRIBUTION.—Throughout the tropics

18. Gynandropsis DC.

19. Gynandropsis pentaphylla DC.

Gwingyin.

DISTRIBUTION.—Throughout the tropics.

19. Crataeva Linn.

20. Crataeva religiosa Forst. VAR. Roxburghii.

Gwingyin.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago, Tropical Africa.

20. *Boscia Lamk.

21. *Boscia variabilis Coll. & Hems.

Desert zone.

DISTRIBUTION.—Upper Burma.

22. *Boscia prunoides n. sp.

Flowers unknown. A shrub with softly pubescent branches and infrequent small recurved spines often scarcely perceptible. *Leaves* petiolate, petiole about 7 mm. long, pubescent, lamina 1·8-2·5 cm. long, 1·2-1·8 cm. broad, ovate or obovate, margin entire, apex retuse, glabrous on both surfaces or with scattered adpressed minute hairs, very finely dotted, nerves obscure or 5-7 running forward at an acute angle with the midrib. Ripe *fruit* about 1·8-2·5 cm. in diameter, dark brown, smooth almost polished, supported on a glabrous brown stalk about 1·3 cm. long.

Salin, *Shaik Mokim!*

DISTRIBUTION.—Upper Burma.

This same species was also collected in the Shan hills in 1891 by King's collector, unfortunately also only in fruit.

21. Capparis Linn.

23. *Capparis grandis Linn.

Minbu.

DISTRIBUTION.—Rajputana, Peninsular India, Burma, Ceylon.

24. *Capparis burmanica Coll. & Hems. (Journ. Linn. Soc. Vol. XXVIII.)

Gwingyin.

Burm. *Kaukkwesa.*

DISTRIBUTION.—Upper Burma.

25. *Capparis orbiculata Wall.

Minbu, *Aubert & Gage?* Common on dry hillocks near the town of Minbu.

DISTRIBUTION.—Upper Burma.

26. Capparis horrida Linn. f.

Minbu.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic Plain, Bengal, Assam, Chittagong and Burma, Ceylon, Malay Archipelago, Philippines.

27. Capparis flavicans Wall.

Gwingyin.

DISTRIBUTION.—Upper Burma and Cochin China.

28. *Capparis hastigera Hance (Journ. Bot., 1868, p. 269 and 1879, p. 8)

Gwingyin.

Burm. *Namanec-thanyet-gyi.*

DISTRIBUTION.—Upper Burma and South China

29. *Capparis polymorpha Kurz (Journ. Asiat. Soc. Bengal, XLII (1873), II 227)

Minbu district.

DISTRIBUTION.—Upper Burma.

VIII.—BIXINEÆ.

22. *Taraktogenos Hassk.

30. Taraktogenos Kurzii King.

Arracan Yomahs near Kan.

Burm. *Kalaw-bin.*

DISTRIBUTION.—Assam, Chittagong, Burma, Malay Peninsula.

IX.—POLYGALACEÆ.

23. Polygala Linn.

31. Polygala erioptera DC.

Sidoktaya.

DISTRIBUTION.—Punjab, Scinde, Peninsular India, Upper Gangetic Plain, Bengal, Upper Burma, Laccadives, Arabia, Africa.

24. Xanthophyllum Roxb.

32. Xanthophyllum glaucum Wall.

Along the bank of the Irawaddy, fringing moist hollows.

DISTRIBUTION.—Chittagong, Burma, Malay Peninsula.

X.—CARYOPHYLLACEÆ.

25. Polycarpæa Lamk.

33. **Polycarpæa corymbosa** Lamk.

Minbu district.

DISTRIBUTION.—Peninsular India, Scinde, Upper Gangetic Plain, North-Western Himalaya, Bengal, Burma, Ceylon, China, Africa, Western Asia.

XI.—PORTULACEÆ.

26. Portulaca Linn.

34 **Portulaca oleracea** Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

XII.—TAMARISCINEÆ.

27. Tamarix Linn.

35. **Tamarix gallica** Linn.

Banks and sandy spits of the Irawaddy and its tributaries.

DISTRIBUTION.—Throughout India and Southern Asia, South and West Europe and North and Tropical Africa.

XIII.—ELATINEÆ.

28. Bergia Linn.

36. **Bergia ammanioides** Roxb.

Pyogingon.

DISTRIBUTION.—Throughout Tropical Asia, Africa and Australia.

XIV. GUTTIFERÆ.

29. Calophyllum Linn.

37. **Calophyllum inophyllum** Linn.

Salin.

DISTRIBUTION.—Peninsular India, Burma, Andaman Islands, Ceylon, Malay Peninsula, East African Islands, Australasia.

30. Mesua Linn.

38. **Mesua ferrea** Linn.

Pyogingon.

DISTRIBUTION.—Peninsular India, Bengal, Assam, Chittagong, Burma, Andaman Islands, Ceylon, Malay Peninsula.

XV.—DIPTEROCARPEÆ.

31. Dipterocarpus Gærtn.

39. Dipterocarpus tuberculatus Roxb.

Arracan Yomahs above Kan, very common.

Burm. *Eng.*

DISTRIBUTION.—Chittagong, Burma, Siam

32. Pentacme A. DC.

40. Pentacme suavis A. DC. Shorea siamensis *Miq.*

Nwamadaung hills, common.

Burm. *In-gyin* or *Ingen.*

DISTRIBUTION.—Burma and Siam.

XVI.—MALVACEÆ.

33. Sida Linn.

41. Sida veronicæfolia Lamk. S. humilis *Willd.*

Pyogingon.

DISTRIBUTION.—Throughout the plains of India and Burma. Malay Archipelago, Ceylon, Tropical Africa and Tropical America.

42. Sida mysorensis W. & A.

Nwamadaung hills.

DISTRIBUTION.—Peninsular and Central India, Bengal, Assam, Burma, Ceylon, Malay Peninsula and Archipelago.

43. Sida acuta Burm. Sida carpinifolia *Linn.*

Sidoktaya, Nwamadaung Hills.

DISTRIBUTION.—Throughout the tropics.

44. Sida rhombifolia Linn.

Nwamadaung Hills.

DISTRIBUTION. Throughout the tropics.

VAR. rhomboidea.

Minbu district.

DISTRIBUTION.—N.-W. Himalaya, Sikkim, Bhutan, Upper Gangetic plain, Bengal, Assam, Burma, Yunnan.

45. Sida cordifolia Linn.

Salin.

DISTRIBUTION.—Throughout the tropics.

34. Abutilon Gærtn.

46. Abutilon polyandrum G. Don.

Arracan Yomahs.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic Plain, Chota Nagpur, Java, Tropical Africa.

47. Abutilon indicum G. Don.

Throughout the district.

DISTRIBUTION.—Throughout the tropics.

48. *Abutilon graveolens W. & A.

Minbu district.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic Plain, Bengal, Burma, Ceylon, Java, Tropical Africa.

35. Urena Linn.

49. Urena lobata Linn.

Nwamadaung hills and banks of Mon river.

DISTRIBUTION.—Throughout the tropics.

50. Urena sinuata Linn.

Nwamadaung hills.

DISTRIBUTION.—Throughout the tropics.

36. Pavonia Cav.

51. Pavonia glechomifolia A. Rich.

Salin.

DISTRIBUTION.—North-West Frontier, Peninsular India, Burma, Ceylon, Arabia, Tropical Africa.

52. Pavonia odorata Willd.

Gwingyin.

DISTRIBUTION.—North-West Frontier, Peninsular and Central India, Upper Gangetic Plain, Chota Nagpur, Burma, Ceylon, Tropical Africa.

37. Hibiscus Medik.

53. Hibiscus surattensis Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics of Asia, Africa and Australia.

54. Hibiscus radiatus Willd.

Minbu district.

DISTRIBUTION.—Peninsular India, Bengal cultivated, Assam, Chitagong, Burma.

55. Hibiscus micranthus Linn

Salin.

DISTRIBUTION.—Throughout the plains of India and Burma Tropical Africa, Arabia.

56. Hibiscus Solandra L'Her.

Minbu district.

DISTRIBUTION.—Throughout the plains of India and Burma, Ceylon, Eastern Tropical Africa.

57. Hibiscus lunariifolius Willd.

Salin.

DISTRIBUTION.—Peninsular India and Burma. Ceylon and Tropical Africa.

58. Hibiscus panduræformis Burm.

Minbu district.

DISTRIBUTION.—Throughout the plains of India and Burma, Ceylon, Tropical Africa and Tropical Australia.

59.* Hibiscus vitifolius Linn.

Minbu district.

DISTRIBUTION.—As the last species.

60. * Hibiscus Sabdariffa Linn.

Arracan Yomahs, on deserted village site.

DISTRIBUTION.—Cultivated throughout the tropics.

61.* Hibiscus ficulneus Linn.

Mon valley near Sidoktaya.

DISTRIBUTION.—Throughout the plains of India and Burma, also in Ceylon.

62.* Hibiscus pungens Roxb.

Nwamadaung hills, below 2,000 ft.

DISTRIBUTION.—N.-W. Himalaya, Nepal, Sikkim, Bhutan, Bengal, Assam, Burma.

63. Hibiscus sagittifolius Kurz. H. Abelmoschus *L.* VAR. multiformis of F. B. I.

Sidoktaya.

DISTRIBUTION.—Manipur, Burma, Malay Archipelago.

This is a quite good species.

64. Hibiscus esculentus Linn.

Minbu district.

DISTRIBUTION.—Cultivated throughout the tropics

65. **Hibiscus schizopetalus** Hooker f.(Bot. Mag. pl. 6524)

Sinbok, cultivated.

DISTRIBUTION.—Native of Tropical East Africa. Cultivated generally throughout India and Burma.

38. Thespesia Corr.

66. **Thespesia Lampas** Dalz. & Gibs.

Mon valley near Sidoktaya.

DISTRIBUTION.—North-West Frontier, Peninsular and Central India, N.-W. Himalaya, Bengal, Assam, Burma, Ceylon, Java, East Tropical Africa.

67. **Thespesia populnea** Corr.

Pyogingon. A single tree in the village, considered a marvel by the villagers on account of the diurnal changing tints of the corolla.

DISTRIBUTION.—Shores of Bengal and Peninsular India, Andaman islands, also planted in Rajputana, Central India and Burma, Ceylon, Malay Peninsula and Archipelago, Africa, Pacific islands.

39. Gossypium Linn.

68. **Gossypium herbaceum** Linn.

Arracan Yomahs.

69. **Gossypium barbadense** Linn. VAR. acuminata.

Nwamadaung hills. Cultivated by the Chins. The above identifications of cotton are provisionally given according to the names in the Calcutta Herbarium.

40. Bombax Linn.

70. **Bombax malabaricum** DC.

Common along the river valleys.

DISTRIBUTION.—Throughout the plains and low hills of India and Burma and Andaman Islands, Ceylon, Malay Archipelago.

71. ***Bombax** sp. Fruits only seen. Burm. *Didok-bin.*

Nwamadaung hills.

This is certainly not *B. malabaricum*, and the writer is of opinion that it cannot very well be *B. insigne* Wall. The fruit of *B. insigne* Wall, is described as "10 inches by 1 inch, elongated, curved at the apex, glabrous." The fully developed fruit of the Nwamadaung hills plant is 5 inches long, with 5 stout rounded ridges, its diameter from one ridge to the opposite one about 2½ inches. Its fruit resembles the fruit of a specimen in the Calcutta Herbarium which Kurz had collected in Pegu, and had named first *B. malabaricum* DC. and then *B. insigne* Wall. The

writer agrees with the remark of Sir George King in his "Materials for a Flora of the Malayan Peninsula" (Journ. Asiat. Soc., Vol. LIX, 1890) wherein he writes, "I have a strong suspicion that what Kurz regarded as *B. insigne* is really an undescribed species." As the seeds brought by the writer to the Calcutta Garden have germinated, it is to be hoped that the elucidation of the identity of this plant is merely a matter of time.

XVII.—STERCULIACEÆ.

41. Sterculia Linn.

72. Sterculia versicolor Wall.

Minbu district.

DISTRIBUTION.—Upper Burma.

73. Sterculia colorata Roxb.

Arracan Yomahs, lower slopes.

DISTRIBUTION.—Rajputana, Peninsular and Central India, Bengal, Assam, Chittagong, Burma, Andaman Islands, Cocos Islands, Ceylon.

42. Helicteres Linn.

74. Helicteres elongata Wall.

Sidoktaya.

DISTRIBUTION.—Sikkim, Burma, Yunnan.

43. Melhania Forsk.

75. Melhania Hamiltoniana Wall.

Salin.

DISTRIBUTION.—Peninsular India and Burma.

44. Melochia Linn.

76. Melochia corchorifolia Linn.

Nwamadaung hills.

DISTRIBUTION.—Throughout the tropics.

45. Waltheria Linn.

77. Waltheria indica Linn.

Sagu, Sidoktaya.

DISTRIBUTION.—Throughout the tropics.

XVIII.—TILIACEÆ.

46. Grewia Linn.

78 * Grewia abutilifolia Juss.

Minbu district.

DISTRIBUTION.—Peninsular India, Burma, Java.

79.* Grewia hirsuta Vahl.

Minbu district.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic Plain, Bengal, Burma, Ceylon.

47. Triumfetta Linn.

80. Triumfetta rhomboidea Jacq.

Minbu district.

DISTRIBUTION.—Throughout Tropical Asia and Africa.

81. Triumfetta rotundifolia Lamk.

Salin.

DISTRIBUTION.—Peninsular and Central India, Bengal, Burma.

82. Triumfetta annua Linn.

Nwamadaung hills.

DISTRIBUTION.—N.-W. Himalaya, Nepal, Sikkim, Bengal, Assam, Burma, Andaman Islands, Malay Peninsula and Archipelago, Tropical Africa.

48. Corchorus Linn.

83. Corchorus olitorius Linn.

Gwingyin.

DISTRIBUTION.—Cultivated throughout the tropics.

84. Corchorus fascicularis Lamk.

Gwingyin.

DISTRIBUTION.—Throughout the plains of India and Burma, Ceylon, Tropical Africa and Australia.

85. Corchorus acutangulus Lamk.

Gwingyin and Myaung-u.

DISTRIBUTION.—Throughout the tropics.

DISCIFLORÆ.

XIX.—MALPHIGIACEÆ.

49. Hiptage Gærtn.

86. Hiptage candicans Hook. f.
Nwamadaung hills.
DISTRIBUTION.—Burma, Manipur.

XX.—ZYGOPHYLLACEÆ.

50. Tribulus Linn.

87. Tribulus terrestris Linn.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

XXI.—GERANIACEÆ.

51. Biophytum DC.

88. Biophytum sensitivum DC.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

52. Impatiens Linn.

89. Impatiens Balsamina Linn.
Minbu district.
DISTRIBUTION.—India, Burma, Ceylon, Malaya, China.

XXII.—RUTACEÆ.

53. Glycosmis Corr.

90. Glycosmis pentaphylla Corr.
Pyogingon.
DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, Philippine Islands, Australia.

54. Micromelum Bl.

91. Micromelum hirsutum Oliver.
Minbu district.
DISTRIBUTION.—Assam, Burma, Malay Peninsula and Archipelago.

55. Limonia Linn.

92. ***Limonia acidissima** Linn.

Gwingyin.

Burm. *Thanakha.*

DISTRIBUTION.—Peninsular India, Bengal, N.-W. Himalaya, Assam, Burma, Yunnan.

56. Atalantia Corr.

93. **Atalantia monophylla** Corr.

Salin.

DISTRIBUTION.—Peninsular India, Bengal, Assam, Burma, Malay Peninsula, and Archipelago, Ceylon.

57. Citrus Linn.

94. **Citrus medica** Linn.

Nwamadaung hills, cultivated.

DISTRIBUTION.—Peninsular and Central India, N.-W., Central and Eastern Himalaya, Assam, Chittagong, Burma, Andamans.

58. Ægle Corr.

95. **Ægle Marmelos** Corr.

Minbu.

DISTRIBUTION.—Cultivated throughout India and Burma.

XXIII.—SIMARUBACEÆ.

59. Harrisonia Brown.

96. **Harrisonia Bennetii** Hook. f.

Minbu district.

DISTRIBUTION.—Burma, Siam, Malay Archipelago, Philippines, China.

60. Balanites Del.

97. **Balanites Roxburghii** Planch.

Ngape.

DISTRIBUTION.—N.-W. Frontier, Upper Gangetic Plain, Peninsular and Central India, Burma.

XXIV.—BURSERACEÆ.

61. Garuga Roxb.

98. Garuga pinnata Roxb.

Arracan Yomahs near Kau.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago, Philippine Islands.

XXV.—MELIACEÆ.

62. Melia Linn.

99. Melia Azadirachta Linn.

Pyogingon and Nwamadaung hills.

DISTRIBUTION.—Throughout India and Ceylon, often planted.

63. Walsura Roxb.

100. Walsura villosa Wall.

Minbu district.

DISTRIBUTION.—Burma and Siam.

64. Chickrassia Adr. Juss.

101. *Chickrassia tabularis Adr. Juss. VAR. velutina.

Minbu district.

DISTRIBUTION.—Peninsular and Central India, Assam, Burma, Andaman Islands, Malay Peninsula, Ceylon.

65. Cedrela Linn.

102. Cedrela Toona Roxb.

Minbu district.

DISTRIBUTION.—Tropical Himalaya, Peninsular and Central India, Burma, Java, Australia.

XXVI.—OLACINEÆ.

66. Olax Linn.

103. Olax scandens Roxb.

Minbu district.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic Plain, Bengal, Burma, Ceylon, Java.

104. *Olax nana Wall.

Arracan Yomahs.

DISTRIBUTION.—N.-W. Himalaya, Punjab, Bengal, Assam, Burma.

67. Cansjera Juss.

105. Cansjera Rheedii Kurz.

Gwingyin.

DISTRIBUTION.—Peninsular India, Gangetic Plain, Burma, Malaya, Australia.

XXVII.—CELASTRINEÆ.

68. Lophopetalum Wight.

106. Lophopetalum Wallichii Kurz.

Ngape.

DISTRIBUTION.—Burma.

XXVIII.—RHAMNACEÆ.

69. Ventilago Gærtn.

107. Ventilago calyculata Tul.

Burm. *Thwédet.*

DISTRIBUTION. Throughout India and Burma, Java.

70. Zizyphus Juss.

108. Zizyphus Jujuba Lamk.

Exceedingly common all over the dry zone, cultivated in the irrigated tracts.

Burm. *Zi-bin*, 'wild plum' of the English residents.

DISTRIBUTION.—Throughout Afghanistan, India and Burma, Ceylon, Malay Peninsula and Archipelago, China, Australia, Tropical Africa.

109. Zizyphus Œnoplia Mill.

Minbu district.

DISTRIBUTION.—Tropical Asia and Australia.

110. Zizyphus glabra Roxb.

A climbing shrub. Branches about as thick as a crowquill, glabrous, smooth, pale, armed with infrequent solitary short recurved brown polished prickles. Leaves petiolate, glabrous on both surfaces

drying green, oval, oblique at the base, apex blunt, margin crenulate or crenulate-serrate, main lateral nerve about 9 mm. from the midrib on each side, secondary lateral nerves 7-9 arching forwards to the margin. Length of lamina 3·8-5 cm., breadth 3-4 cm., length of petiole about 1 cm. Inflorescence of short pedunculate axillary cymes 1·2—1·8 cm. long, 5-10-flowered, peduncles about 7 cm. long. Flowers shortly pedicellate, glabrous or with a very sparse pubescence. Calyx obconical five lobed, lobes about equal to depth of calyx cup, keeled internally, acute. Petals minute, cucullate. Disc flat, obscurely 10-lobed, glabrous. Stamens 5, filaments about as long as the calyx lobes, anthers short. Ovary 3-celled, styles 3, united almost to the top, stigmas sub-capitate. Fruit glabrous brown, oval, 1·8 cm. by 1·3 cm., 2-celled and 2-seeded.

Legain, *Shaik Mokim !*

DISTRIBUTION.—Chittagong, Burma, Andaman Islands.

XXIX.—AMPELIDEÆ.

71. Vitis Linn.

111. Vitis discolor Dalz.

Sidoktaya.

DISTRIBUTION.—Peninsular India, Nepal, Sikkim, Assam, Burma, Andaman Islands, Malay Peninsula and Archipelago, Cochin-China.

112. *Vitis assamica Laws.

Minbu district.

DISTRIBUTION.—Sikkim, Assam, Chittagong, Burma.

113. * Vitis Aubertiana n. sp.

Branches cylindrical, ridged and furrowed when dry, glabrous. Leaves petiolate, simple, glabrous on both surfaces, drying green, petiole about 4·5 cm. long, lamina 11 to 25 cm. from petiole to apex and about the same transversely, palmatifid into 3-6 long narrow digitations, 10-25 cm. long, 1·3-3 cm. broad, distantly or obscurely serrate or irregular in outline, each with a median nerve prominent below and giving off horizontal secondary nerves to interarch near the margin. Inflorescence of axillary cymes 4·5—8·5 cm. long, glabrous or scurfily pubescent, especially on the pedicels. Flowers minute, on pedicels about 5 mm. long, calyx entire, petals 4, coherent in the bud, stamens 4, style very short, truncate.

Sidoktaya, *Shaik Mokim !*

The extraordinary leaves of this species distinguish it readily from all other Indian species.

72. Leea Linn.

114. Leea compactiflora Kurz.

Arracan Yomahs near Kan.

DISTRIBUTION.—Burma.

Mr. C. B. Clarke considers this a distinct species in this Revision of Leea in Journ. Bot., Vol. X, 1881.

XXX.—SAPINDACEÆ.

73. Cardiospermum Linn.

115. Cardiospermum Halicacabum Linn.

Common in the district.

DISTRIBUTION.—Throughout the tropics.

74. Sapindus Plum.

116. *Sapindus Mukorossi Gærtn.

Arracan Yomahs. Undoubtedly wild.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic Plain (cult.), Bengal (cult.), Burma, China, Japan.

XXXI.—ANACARDIACEÆ.

75. Rhus Linn.

117. Rhus paniculata Wall.

Ngape.

DISTRIBUTION.—Bhutan and Burma, China.

76. Mangifera Linn.

118. Mangifera indica Linn.

Cultivated in the alluvial belts.

DISTRIBUTION.—Cultivated generally in the tropics.

77. Buchanania Roxb.

119. Buchanania latifolia Roxb.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma.

120. Buchanania glabra Wall?

Gwingyin.

Burm. *Lun-bin.*

There is unfortunately not an example of *B. glabra* in Calcutta Herbarium, so that the identification is not assured. The Gwingyin

plant, however, agrees fairly well with the description in the Flora of British India. It is certainly near to but not B. angustifolia *Roxb.*

78. Melanorrhœa Wall.

121. Melanorrhœa usitata Wall.

Minbu district.

DISTRIBUTION.—Assam, Burma.

79. Odina Roxb.

122. Odina Wodier Roxb.

Nwamadaung hills.

DISTRIBUTION.—Throughout India, Burma, Andaman Islands, Ceylon.

80. Semecarpus Linn. f.

123. Semecarpus albescens Kurz.

Arracan Yomahs near Kan.

Burm. *Chi-thee.*

DISTRIBUTION.—Burma.

81. Spondias Linn.

124. Spondias mangifera Willd.

Mon valley near Sidoktaya.

Burm. *Gwe-bin.*

DISTRIBUTION.—Throughout Tropical Asia.

XXXII.—MORINGEÆ.

82. Moringa Lamk.

125. Moringa pterygosperma Gærtn.

Pyogingon and elsewhere in the district.

Burm. *Dandalon-bin.*

DISTRIBUTION.—Wild or cultivated throughout the tropics.

CALYCIFLORÆ.

XXXIII.—LEGUMINOSÆ.

83. Crotalaria Linn.

126. Crotalaria albida Heyne.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, China, Philippine Islands.

127. Crotalaria nana Burm. VAR. **patula.**

Minbu district.

DISTRIBUTION.—For the species—Peninsular India and Ceylon. For the variety—Burma.

128. Crotalaria linifolia Linn. f.

Sidoktaya.

DISTRIBUTION.—Peninsular and Central India, Bengal, Burma, Java, Ceylon, China, Philippine Islands, Australia.

129. Crotalaria sessiliflora Linn.

Sidoktaya.

DISTRIBUTION.—N.-W. Himalaya, Nepal, Sikkim, Assam, Burma, Upper Gangetic Plain, Bengal, Andaman and Nicobar Islands, Malay Peninsula and Archipelago, China, Philippine Islands, Japan.

130. Crotalaria nerilifolia Wall.

Arracan Yomahs.

DISTRIBUTION.—Burma.

131. Crotalaria retusa Linn.

Sinbok and Pyogingon. Cultivated in patches all over the alluvial belt. Burm. *Peik-san bin.*

DISTRIBUTION.—Throughout the tropics.

132. Crotalaria verrucosa Linn.

Common in the alluvial belt.

DISTRIBUTION.—Throughout the tropics.

133. Crotalaria tetragona Roxb.

Nwamadaung hills.

DISTRIBUTION.—Peninsular India, N.-W. Himalaya, Sikkim, Bhutan, Assam, Burma, Java.

134. Crotalaria juncea Linn.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago, Australia.

135. Crotalaria medicaginea Lamk.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Afghanistan, Ceylon, Malay Archipelago, Australia.

136. Crotalaria quinquefolia Linn.

Legain.

DISTRIBUTION.—Peninsular India, Bengal, Burma, Siam, Malay Peninsula and Archipelago, Philippine Islands.

84. Melilotus Juss.

137. *Melilotus alba Lamk.

On moist sand, bank of Irawaddy near Senion.

DISTRIBUTION.—Peninsular India, N.-W. Himalaya, Upper Gangetic Plain, Bengal, Assam, Burma, Northern and Western Asia, Europe.

85. Indigofera Linn.

138. *Indigofera minbuensis n. sp.

A shrub with virgate branches, ridged and furrowed, covered with minute adpressed almost scabrid hairs. Leaves pale-green, alternate, simple, subsessile, linear, acute, mucronulate, 3·8-6 cm. long and about 3 mm. broad, with entire margins and covered on both surfaces with minute triangular adpressed scabrid hairs exposing minute oblique pits when rubbed off, midrib prominent beneath, white. Inflorescence of short axillary cymes about 1·2-1·8 cm. long. Flowers small, calyx covered with minute close adpressed white hairs, 5-toothed, 4 posterior minute, setaceous, 1 anterior much larger, lanceolate, corolla small, seen only in a withered state. Pods deflexedly linear cylindrical, mucronulate, about 1·5 cm. long, covered with minute adpressed hairs. Seeds about 6.

Arracan Yomahs 4,000 ft. *Shaik Mokim*!

This species is exceedingly distinct from all other Indian species. It appears to come nearest to the African *I. simplicifolia* Lamk., from which it differs in having considerably larger leaves, and shorter, stouter and deflexed pods.

139. Indigofera linifolia Retz.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, in Ceylon, Malay Archipelago, Afghanistan, Africa, Australia.

140. Indigofera enneaphylla Linn.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, in Ceylon, Malay Archipelago, Australia, Africa.

141. Indigofera pentaphylla Linn.

Sagu.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Tropical Africa.

142. Indigofera viscosa Lamk.

Sidoktaya.

DISTRIBUTION.—Throughout the plains of India and Burma Ceylon, Malay Archipelago, Australia, Afghanistan, Africa.

143. Indigofera trifoliata Linn.

Sidoktaya.

DISTRIBUTION.—Throughout India and Burma, in Ceylon, Malay Archipelago, Australia, China.

144. Indigofera trita Linn. f.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, in Ceylon, Malay Archipelago, Australia, Tropical Africa.

145. Indigofera hirsuta Linn.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, in Ceylon, Malay Peninsula, Archipelago, Australia, Philippine Islands, tropical Africa and America.

146. Indigofera sumatrana Gærtn.

Mon valley, cultivated by Burmese and Chins.

DISTRIBUTION.—Cultivated in Peninsular India, Scinde, Upper Gangetic Plain, Bengal, Assam, Burma, Malay Peninsula and Archipelago.

147. * Indigofera Wightii Grah.

Nwamadaung hills.

DISTRIBUTION.—Peninsular India, Burma, Ceylon.

148. Indigofera arborea Roxb.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma.

149. Indigofera suffruticosa Mill. I. Anil *Linn.*

Sinbok, cultivated.

Burm. *Mè-bin.*

DISTRIBUTION.—Bengal, Burma, Andaman Islands, Malay Peninsula and Archipelago, Philippine Islands, Pacific Islands, Tropical Africa and America.

86. Psoralea Linn.

150. * Psoralea corylifolia Linn.

Pyogingon.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

87. Millettia W. & A.

151. Millettia pendula Benth.

Minbu district.

DISTRIBUTION.—Burma, Siam.

152. Millettia cana Benth.
Minbu district.
DISTRIBUTION.—Burma.

153. Millettia tetraptera Kurz.
Minbu district.
DISTRIBUTION.—Burma.

154. Millettia cinerea Benth.
Arracan Yomahs near Kan.
DISTRIBUTION.—Sikkim, Assam, Chittagong, Burma.

155. Millettia ovalifolia Kurz.
Gwingyin and Ngape.
DISTRIBUTION.—Burma and Siam.

156. Millettia Brandisiana Kurz.
Nwamadaung hills.
DISTRIBUTION.—Burma and Siam.

157. Millettia auriculata Baker.
Arracan Yomahs near Kau.
DISTRIBUTION.—Central India, N.-W., Central and Eastern Himalayas, Upper Gangetic Plain, Bengal, Assam, Burma.

88. Tephrosia Pers.

158. Tephrosia purpurea Pers.
Exceedingly common all over the district.
Burm. *Mè-yaing* "wild indigo."
DISTRIBUTION.—Throughout the tropics.

159. Tephrosia villosa Pers.
Minbu district.
DISTRIBUTION.—Throughout the plains of India and Burma, Ceylon, Tropical Africa.

160. Tephrosia Grahami Wall.
Sidoktaya.
DISTRIBUTION.—Burma.

89. Sesbania Pers.

161. Sesbania ægyptiaca Pers.
Sinbok and Pyogingon.
Burm. *Yé-tha-gyi.*
DISTRIBUTION.—Throughout the Eastern tropics.

162. Sesbania aculeata Pers.

Arracan Yomahs near Kan.

DISTRIBUTION.—Throughout the Eastern tropics.

163. Sesbania grandiflora Pers.

Sinbok and Pyogingon. Sinbok plant with a large pale-yellow corolla, Pyogingon plant with a smaller violet corolla.

Burm. *Pauk-pan-bya-bin.*

DISTRIBUTION.—Peninsular and Central India, Bengal, Assam, Burma, Malay Peninsula and Archipelago, Australia, East African Islands.

90. Zornia Gml.

164. Zornia diphylla Pers.

Sidoktaya.

DISTRIBUTION.—Throughout the tropics.

91. Æschynomene Linn.

165. Æschynomene indica Linn.

Pyogingon.

DISTRIBUTION.—Throughout the Eastern tropics.

92. Lourea Neck.

166. Lourea obcordata Desv.

Minbu district.

DISTRIBUTION.—Burma, Malay Archipelago, Australia, Philippine Islands, China.

167. Lourea campanulata Benth.

Minbu district.

DISTRIBUTION.—Burma.

93. Uraria Desv.

168. Uraria picta Desv.

Pyogingon.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, Nicobar and Phillippine Islands, Tropical Africa.

169. Uraria hamosa Wall.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago.

170. Uraria cordifolia Wall.

Sidoktaya.

DISTRIBUTION.—Burma.

94. Alysicarpus Neck.

171. Alysicarpus monilifer DC.

Pyogingon.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic Plain, Bengal, Burma, Ceylon, Java, Tropical Africa.

172. Alysicarpus vaginalis DC.

Arracan Yomahs.

DISTRIBUTION.—Throughout the Eastern tropics.

173. Alysicarpus bupleurifolius DC.

Sidoktaya.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago, Polynesia, East African Islands, Philippine Islands, China.

174. Alysicarpus rugosus DC. VAR. styracifolia.

Minbu district.

DISTRIBUTION, of the species.—Eastern tropics, Southern Africa, West Indies; of the variety, India and Burma.

95. Desmodium Desv.

175. *Desmodium Wallichii Prain. (Journ. Asiat. Soc. Bengal, Vol. LXVI, II, 1897.)

Minbu district.

DISTRIBUTION.—Burma.

176. Desmodium Cephalotes Wall. VAR. * congesta, *Prain.* (Journ. Asiat. Soc. Bengal, Vol LXVI, II, 1897.)

Sidoktaya.

DISTRIBUTION, of variety.—Peninsular India, Chittagong, Burma, Ceylon.

177. Desmodium pulchellum Benth.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, Philippine Islands, China.

178. Desmodium grande Kurz.

Sidoktaya.

DISTRIBUTION.—Burma.

179. Desmodium teres Wall.

Sidoktaya.

DISTRIBUTION.—Upper Burma.

180. **Desmodium oblongum** Wall.
Minbu district.
DISTRIBUTION.—Upper Burma.

181. * **Desmodium Kinglanum** Prain. (Journ. Asiat. Soc. Bengal, Vol. LXVI. II, 1897.)
Sidoktaya.
DISTRIBUTION.—Upper Burma.

182. **Desmodium diffusum** DC.
Minbu district.
DISTRIBUTION.—Peninsular and Central India, Bengal, Burma, China.

183. **Desmodium triflorum** DC
Pyogingon.
DISTRIBUTION.—Throughout the tropics.

184. **Desmodium gyrans** DC.
Arracan Yomahs.
DISTRIBUTION.—Throughout India and Burma, Malay Archipelago, Philippine Islands.

96. Abrus Linn.

185. **Abrus precatorius** Linn.
Common in the district.
Burm. *Ywé-galé.*
DISTRIBUTION.—Throughout the tropics.

97. Cicer Linn.

186. **Cicer arietinum** Linn.
Alluvial belt, cultivated.
DISTRIBUTION.—Throughout the tropics.

98. Teramnus Sw.

187. **Teramnus labialis** Spreng.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

99. Mucuna Adans.

188. **Mucuna pruriens** DC.
Nwamadaung hills.
DISTRIBUTION.—Throughout the tropics

100. Erythrina Linn.

189. Erythrina suberosa Roxb.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma.

VAR. glabrescens *Prain*. (Journ. Asiat. Soc. Bengal, Vol. LXVI, II, 1897.)

Minbu.

DISTRIBUTION.—N.-W. Himalaya, Sikkim, Burma.

101. Galactia P. Br.

190. Galactia tenuiflora W. & A. VAR. *villosa.

Minbu district.

DISTRIBUTION.—Central and Peninsular India, Bengal, Burma.

102. Spatholobus Hassk.

191. Spatholobus Roxburghii Benth.

Ngape.

DISTRIBUTION.—Throughout India and Burma.

103. Butea Roxb.

192. Butea frondosa Roxb.

Common in the alluvial belt.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

193. Butea superba Roxb.

Nwamadaung hills.

DISTRIBUTION.—Peninsular India, Rajputana, Upper Gangetic Plain, Bengal, Burma.

104. Canavalia DC.

194. Canavalia ensiformis DC.

Nwamadaung hills, wild. Cultivated in the alluvial tract.

DISTRIBUTION.—Throughout the tropics.

105. Pueraria DC.

195. Pueraria Candollei Grah.

Mon valley.

DISTRIBUTION.—Chittagong, Burma, Cocos Islands.

VAR. eriocarpa. Pods as hairy as those of *P. tuberosa*,

Minbu district.

196. Pueraria Wallichii DC.

Arracan Yomahs.

197. DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma.

198. **Pueraria stricta** Kurz.
Sidoktaya.
DISTRIBUTION.—Burma.

106. Phaseolus Linn.

199. **Phaseolus lunatus** Linn.
Sinbok and Salin, "Chinese pea," cultivated.
Burm. *Pè-talok.*
DISTRIBUTION.—Throughout the tropics.

200. **Phaseolus adenanthus** G. F. Meyer.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

201. **Phaseolus trilobus** Ait.
Minbu district.
DISTRIBUTION. Throughout India and Burma, Andaman islands, Ceylon, Malay Archipelago, Afghanistan, Northern Africa.

202. **Phaseolus Mungo** Linn.
Sinbok, cultivated.
Burm. *Pè-nauk.*
DISTRIBUTION.—Throughout the Eastern tropics.

203. **Phaseolus calcaratus** Roxb.
Minbu, cultivated.
Burm. *Pè-yin.*
DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago.

107. Clitoria Linn.

204. **Clitoria Ternatea** Linn.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

108. Dolichos Linn.

205. **Dolichos Lablab** Linn.
Cultivated throughout the alluvial belt.
Burm. Pè-bya, Pè-bason, Pè-gyi, Pè-lun.
DISTRIBUTION.—Throughout the Eastern tropics.

206. **Dolichos biflorus** Linn.
Sinbok.
Burm. *Pè-ngapi.*
DISTRIBUTION.—Throughout the Eastern tropics.

207. Dolichos falcatus Klein.

Sidoktaya.

DISTRIBUTION.—N.-W. Himalaya, Sikkim, Assam, Burma, Ceylon, Malay Archipelago.

208. Dolichos subcarnosus W. & A.

Minbu district.

DISTRIBUTION.—Western India, Assam, Chittagong, Burma.

109. Atylosia W. & A.

209. Atylosia nivea Benth.

Minbu district.

DISTRIBUTION.—Burma.

210. Atylosia scarabæoides Benth.*

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay-Peninsula, China, Mascarene islands.

110. Cajanus DC.

211. Cajanus indicus Spreng.

Sinbok.

Burm. *Pè-singon.*

DISTRIBUTION.—Throughout the tropics.

111.* Cylista Ait.

212. Cylista scariosa Ait.

Nwamadaung hills.

DISTRIBUTION.—Peninsular India, Upper Gangetic plain, Bengal, Burma.

112. Rhynchosia Lour.

213.* Rhynchosia suaveolens DC.

Arracan Yomahs.

DISTRIBUTION.—Peninsular and Central India, Burma, Ceylon.

214. Rhynchosia minima DC. and VAR. laxiflora.

Minbu district.

DISTRIBUTION.—Throughout the tropics, S. Africa and North America.

215. Rhynchosia bracteata Benth.

Nwamadaung hills.

DISTRIBUTION.—Peninsular and Central India, N.-W. Himalaya, Upper Gangetic Plain, Bengal, Burma.

113. Flemingia Roxb.

216. Flemingia strobilifera R.Br. VAR. *fluminalis*,
F. fluminalis *C. B. Clarke.*
Nwamadaung hills.
DISTRIBUTION of variety.—Chittagong and Burma.

217. Flemingia lineata Roxb.
Common in the district.
DISTRIBUTION.—Throughout India and Burma, Ceylon, Siam, Malay Archipelago, N. Australia.

218.* Flemingia nana Roxb.
Arracan Yomahs
DISTRIBUTION.—Peninsular and Central India, Upper Gangetic plain, Bengal, Burma.

114. Dalbergia Linn. f.

219. Dalbergia obtusifolia Prain. D. ovata *Grah.* VAR. obtusifolia *Baker* of F. B. I.
Minbu district.
DISTRIBUTION.—Burma.

220. Dalbergia cultrata Grah.
Arracan Yomahs.
DISTRIBUTION.—Burma and Siam.

221.* Dalbergia paniculata Roxb.
Salin.
DISTRIBUTION.—Peninsular India, Burma.

222.* Dalbergia Kurzii Prain. (Journ. Asiat. Soc. Bengal, Vol. LXVI. II. 1897).
Nwamadaung hills.
DISTRIBUTION.—Burma.

115. Pterocarpus Linn.

223. Pterocarpus macrocarpus Kurz.
Nwamadaung hills.
Burm. *Padauk.*
DISTRIBUTION.—Burma.

116. Derris Lour.

224.* Derris pulchra n. sp.
Branches glabrous, cinereous, abundantly lenticellate. Leaves 3-5 foliolate, 11·5-14·5 cm. from base of common petiole to apex

of terminal leaflet. Leaflets of 3-foliolate leaves broadly elliptical or oval, glabrous on both surfaces, smooth above, finely reticulate beneath and midrib prominent, lateral leaflets about 6·2 cm. long including petiolule and about 3·5 cm. broad, lateral nerves 5-6, terminal leaflet about 9 cm. long and 5 cm. broad, lateral nerves 6-8. Leaflets of 5-foliolate leaves oval or obovate, rather smaller than those of the 3-foliolate leaves. Inflorescence of axillary panicles, as long as the leaves. Flowers not seen. Pedicels in fruit about 1·2 cm. long. Pod 1-3 seeded, glabrous, smooth, reticulated, elliptical mucronate 5·3-6·8 cm. long 1·5-2·5 cm. broad, winged along both sutures, upper wing 4·6 mm. broad, lower wing about 2·3 mm.

Arracan Yomahs, *Shaik Mokim !*

225. Derris scandens Benth.

Minbu district.

DISTRIBUTION.—Peninsular India, Bengal, Eastern Himalayas, Chittagong, Burma, Andaman islands, Ceylon, Malay Peninsula and Archipelago, N. Australia, Siam, China.

117. Cæsalpinia Linn.

226. Cæsalpinia Bonducella Fleming.

Sinbok.

DISTRIBUTION.—Throughout the tropics.

227. Cæsalpinia Sappan Linn.

Minbu district.

DISTRIBUTION.—Peninsular India, Bengal, Burma, Malay Peninsula and Archipelago.

228. Cæsalpinia digyna Rottl.

Gwingyin, and Nwamadaung hills.

Burm. *Sun-lethet-thee.*

DISTRIBUTION.—Peninsular and Central India, Bengal, Chittagong, Burma, Siam, Malay Peninsula and Archipelago, Ceylon.

118. Mezoneurum Desf.

229. Mezoneurum hymenocarpum W. & A. M. pubescens of *Baker* not of *Desfontaines.*

Gwingyin and Nwamadaung hills.

DISTRIBUTION.—Ceylon, Andaman islands, Burma.

119. Parkinsonia, Linn.

230. Parkinsonia aculeata Linn.

Common in the alluvial belt.

Burm. *Kwanya-si-bin.*

DISTRIBUTION.—Throughout the tropics cultivated and naturalized.

120. Cassia Linn.

231. Cassia renigera Wall.

Sagu.

DISTRIBUTION.—Burma.

232. Cassia occidentalis Linn.

Sinbok.

DISTRIBUTION.—Throughout the tropics.

233. Cassia Sophera Linn.

Pyogingon, Salin.

DISTRIBUTION.—Throughout the tropics.

234. Cassia Tora Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

235. Cassia auriculata Linn.

Minbu district.

DISTRIBUTION.—Rajputana, Peninsular and Central India, Chittagong, Burma, Ceylon.

236. Cassia alata Linn.

Pyogingon.

DISTRIBUTION.—Throughout the tropics.

237.* Cassia siamea, Lamk.

Pyogingon.

DISTRIBUTION.—Peninsular and Central India, Bengal, Chittagong, Burma, Andaman islands, Malay Peninsula, Ceylon, Siam.

238. Cassia timoriensis DC.

Myaung-u.

DISTRIBUTION.—Peninsular India, Chittagong, Burma, Malay Peninsula and Archipelago, Ceylon, Philippine islands, China, N. Australia.

239. Cassia glauca Lamk.

Minbu district.

VAR. suffruticosa.

Sinbok and Pyogingon.

Burm. *Pyi-ban-nyo.*

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, China, Pacific islands, N. Australia.

240. Cassia mimosoides Linn. VAR. dimidiata.

Sidoktaya.

DISTRIBUTION.—Throughout the tropics.

121. Tamarindus Linn.

241. Tamarindus indica Linn.

Throughout the district.

DISTRIBUTION.—Throughout the tropics.

122. Bauhinia Linn.

242.* Bauhinia tomentosa Linn.

Pyogingon.

DISTRIBUTION.—Rajputana, Upper Gangetic plain, Bengal, Peninsular India, Burma, Malay Archipelago, Andaman islands, Ceylon, Siam.

243. Bauhinia polycarpa Wall.

Arracan Yomahs near Kan.

DISTRIBUTION.—Arracan and Pegu Yomahs, Shan hills, Martaban, Tennasserim.

244. Bauhinia racemosa Lamk.

Gwingyin.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Burma, Punjab, Rajputana, Scinde, Central and Peninsular India, Ceylon, Malay Archipelago, China.

What appears to be a distinct variety of this species was found in the Nwamadaung hills in fruit only, the pods being much fuller than those of the type—almost cylindrical.

245. Bauhinia malabarica Roxb.

Salin.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago.

246. Bauhinia diphylla Ham.

Nwamadaung hills.

DISTRIBUTION.—Peninsular India, Burma.

250. Bauhinia purpurea Linn.

Minbu district.

DISTRIBUTION.—Throughont India and Burma, China.

251. Bauhinia variegata Linn.

Arracan Yomahs near Kan.

DISTRIBUTION.—Throughout India and Burma, China.

123. Neptunia Lour.

252. Neptunia oleracea Lour.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

124. Xylia Benth.

253. Xylia dolabriformis Benth.

Nwamadaung hills.

DISTRIBUTION.—Bengal (Orissa), Peninsular India, Burma, Malay Peninsula, Siam, Philippine islands.

125. Entada Adans.

254. Entada scandens Benth.

Arracan Yomahs.

DISTRIBUTION.—Throughout the tropics.

126. Adenanthera Linn.

255.* Adenanthera pavonina Linn.

Pyogingon.

DISTRIBUTION.—Upper Gangetic plain, Bengal, Assam, Chittagong, Burma, Andaman islands, Peninsular India, Ceylon, Malay Peninsula and Archipelago, Philippine islands, China, Mascarene islands, N. Australia.

127. Dichrostachys DC.

256.* Dichrostachys cinerea W. & A.

Salin.

DISTRIBUTION.—Rajputana, Peninsular and Central India, Bengal Orissa), Burma, Ceylon, Malay Archipelago, N. Australia.

128. Leucæna Benth.

257. Leucæna glauca Benth.

Sinbok.

Burm. *Aseik-hpyé-bin.*

DISTRIBUTION.—Throughout the tropics.

129. Mimosa Linn.

258. Mimosa pudica Linn. Common in the alluvial belt.

DISTRIBUTION.—Throughout India, Burma, Ceylon, tropical America.

130. Acacia Willd.

259. Acacia Farnesiana Willd.

Sinbok.

DISTRIBUTION.—Throughout the tropics.

260.* Acacia Arabica Willd.

Common, planted throughout the district.

DISTRIBUTION.—Punjab, Rajputana, Scinde, Peninsular and Central India, Bengal, Burma, Ceylon, Arabia, Africa.

261. Acacia Kingii Prain. (Journ. Asiat. Soc. Bengal, Vol. LXVI, 2. 506, 1897.)

Salin.

DISTRIBUTION.—Upper Burma.

262. Acacia leucophlœa Willd.

Gwingyin.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago.

263. Acacia catechuoides Benth.

Mon valley near Sidoktaya.

Burm. *Sha-bin.*

DISTRIBUTION.—Bengal, Assam, Burma.

264. Acacia concinna DC. VAR. rugata.

Minbu district.

DISTRIBUTION of variety.—Nepal, Sikkim, Bengal, Assam, Burma, Andamans, Central India.

265. Acacia pennata Willd.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago, Africa.

VAR. arrophula.

Ngape.

DISTRIBUTION.—Throughout India and Burma.

266. Acacia canescens Grah.

Minbu district.

DISTRIBUTION.—Peninsular India, Burma.

VAR. macrocarpa.

Minbu district.

DISTRIBUTION.—Burma.

131. Albizzia Durazz.

267. Albizzia Lebbek Benth.

Common throughout the district in the plains.

DISTRIBUTION.—Throughout the Eastern tropics.

268. Albizzia lebbekoides Benth. (Hook. Lond. Journ. Bot., III, 89.

Ngape.

DISTRIBUTION.—Burma, Siam, Java.

269. Albizzia procera Benth.

Arracan Yomahs.

DISTRIBUTION.—N.-W. and Eastern Himalaya, Bengal, Central and Peninsular India, Assam, Chittagong, Burma, Andaman islands, Malay Archipelago, Philippine islands.

270. Albizzia lucida Benth.

Minbu district.

DISTRIBUTION.—Upper Gangetic plain (cult.), Nepal, Sikkim, Assam, Chittagong, Burma, Malay Peninsula and Archipelago.

132. Pithecolobium Mart.

271. Pithecolobium dulce Benth.

Minbu district.

DISTRIBUTION.—Planted throughout India and Ceylon, Malay Peninsula, Philippine islands. Indigenous to South America.

XXXIV.—ROSACEÆ.

133. Pygeum Gærtn.

272.* Pygeum acuminatum Colebr.

Arracan Yomahs.

DISTRIBUTION.—Sikkim, Assam, Chittagong, Burma, Andaman islands.

134. Rosa Linn.

273. Rosa involucrata Roxb.

Common in the alluvial belt.

Burm. *Myit-king.*

DISTRIBUTION.—Upper Gangetic plain, Bengal, Assam, Burma. Circars.

135. Eriobotrya Lindl.

274. Eriobotrya bengalensis Hook. f.

Arracan Yomahs.

DISTRIBUTION.—Sikkim, Bengal, Assam, Burma, Malay Peninsula.

XXXV.—CRASSULACEÆ.

136. Kalanchoe Adans.

275. Kalanchoe spathulata DC.

Minbu district.

DISTRIBUTION.—N.-W. and Eastern Himalayas, Bengal, Assam, Burma, Malay Archipelago, China.

276. Kalanchoe laciniata DC.

Minbu district.

DISTRIBUTION.—Peninsular India, Bengal, Burma, Malay Archipelago, China, Tropical Africa.

XXXVI.—COMBRETACEÆ.

137. Terminalia Linn.

277. Terminalia Catappa Linn.

Pyogingon.

DISTRIBUTION.—Planted throughout the tropics.

278. Terminalia Bellerica Roxb.

Minbu district.

DISTRIBUTION.—Throughout India—except the West—and Burma, Ceylon, Malay Peninsula.

279. Terminalia tomentosa Bedd.

Arracan Yomahs, common.

DISTRIBUTION.—Peninsular and Central India, Upper Gangetic plain, Bengal, Nepal, Sikkim, Assam, Burma.

VAR. crenulata.

VAR. macrocarpa.

The writer is of opinion that there are really two distinct varieties. There are several gatherings of the former collected at Sidoktaya, Ngape and elsewhere all agreeing with each other and differing from the latter in having considerably smaller leaves and fruit. The leaf of VAR. *crenulata* averages 4½ inches long, that of VAR. *macrocarpa* about 8 inches. The fruit of VAR. *crenulata* is about 2 inches long and 3-3½ inches in circumference, that of VAR. *macrocarpa* 2½ inches and 6-6½ inches in circumference.

280. **Terminalia pyrifolia** Kurz.
Sidoktaya.
DISTRIBUTION.—Burma.

281. **Terminalia Oliveri** Brandis. (Hooker's Icones Plantarum, Pl. 2202.)
Minbu district.
DISTRIBUTION.—Burma.

138. Calycopteris Lamk.

282. **Calycopteris floribunda** Lamk.
Myaung-u, Nwamadaung hills.
DISTRIBUTION.—Orissa, Peninsular India, Assam, Burma, Malay Peninsula.

139. Anogeissus Wall.

283. **Anogeissus acuminata** Wall. VAR. lanceolata.
Arracan Yomahs, lower slopes.
DISTRIBUTION of variety.—Chittagong, Burma.

140. Combretum Linn.

284. **Combretum apetalum** Wall.
Common all over the district.
DISTRIBUTION.—Burma.

285. **Combretum pyrifolium** Kurz.
Minbu district.
DISTRIBUTION.—Burma.

286. **Combretum trifoliatum** Vent.
Common in the alluvial belt.
Burm. *Hsauk-bin.*
DISTRIBUTION.—Burma, Malay Peninsula and Archipelago.

287. **Combretum chinense** Roxb.
Arracan Yomahs, lower slopes.
DISTRIBUTION.—Assam, Chittagong, Burma, Andaman Islands, Malay Peninsula.

288. Combretum extensum Roxb.

Arracan Yomahs, lower slopes.

DISTRIBUTION.—Assam, Chittagong, Burma, Andaman islands, Peninsular India, Ceylon, Malay Peninsula and Archipelago.

141. Quisqualis Linn.

289. Quisqualis indica Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics, cultivated.

XXXVII.—MYRTACEÆ.

142. Psidium Linn.

290. Psidium Guyava Linn.

Cultivated in the alluvial belt.

Burm. *Mankala-bin*.

DISTRIBUTION.—Cultivated throughout the tropics.

143. Barringtonia Forst.

291. Barringtonia acutangula Gærtn.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, (?) Malay Peninsula.

XXXVIII.—LYTHRACEÆ.

144. Ammannia Linn.

292. Ammannia peploides Spreng.

Minbu district.

DISTRIBUTION.—Throughout the Eastern tropics.

293. Ammannia baccifera Linn.

Minbu district.

DISTRIBUTION.—Throughout the Eastern tropics.

294. *Ammannia salicifolia Monti.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Tropical Africa.

145. Lawsonia Linn.

295. Lawsonia alba Lamk.

Salin.

DISTRIBUTION.—Cultivated throughout the tropics.

146. Lagerstræmia Linn.

296. Lagerstræmia parviflora Roxb.

DISTRIBUTION.—N.-W. and Eastern Himalayas, Bengal, Central and Peninsular India, Assam, Burma.

297. Lagerstræmia macrocarpa Wall.

Minbu district.

DISTRIBUTION.—Chittagong and Burma.

Fruits very large, 5 inches in circumference.

298. Lagerstræmia villosa Wall.

Sidoktaya.

DISTRIBUTION.—Burma.

299. Lagerstræmia tomentosa Presl.

Arracan Yomahs.

DISTRIBUTION.—Burma.

147. Duabanga Ham.

300. Duabanga sonneratioides Ham.

Arracan Yomahs.

DISTRIBUTION.—Sikkim, Assam, Chittagong, Burma, Andaman islands, Malay Peninsula.

148. Punica Linn.

301. Punica Granatum Linn.

Sinbok, cultivated.

Burm. *Tale-bin.*

DISTRIBUTION.—Cultivated throughout the tropics.

XXXIX.—ONAGRACEÆ.

149. Jussieua Linn.

302. Jussieua repens Linn.

Paunglin and Salin lakes.

DISTRIBUTION.—Throughout the tropics.

303. Jussieua suffruticosa Linn.

Paunglin lake.

DISTRIBUTION.—Throughout the tropics.

XL.—PASSIFLORACEÆ.

150. Passiflora Linn.

304. Passiflora foetida Linn.

Minbu district.

DISTRIBUTION.—Upper Gangetic plain, Bengal, Assam, Burma, Malay Peninsula, naturalised, as in most tropical countries. Wild in tropical America.

XLI.—CUCURBITACEÆ.

151. Hodgsonia Hook. f. & T.

305. Hodgsonia heteroclita Hook. f. & T.

Nwamadaung hills.

DISTRIBUTION.—Sikkim, Assam, Chittagong, Burma, Malay Peninsula and Archipelago.

152. Trichosanthes Linn.

306. Trichosanthes palmata Roxb.

Minbu district.

DISTRIBUTION.—Throughout the Eastern tropics and N. Australia.

307. Trichosanthes cucumerina Linn.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago.

153. Gymnopetalum Arn.

308. Gymnopetalum cochinchinense Kurz.

Sidoktaya.

DISTRIBUTION.—Sikkim, Bengal, Assam, Burma, Malay Peninsula and Archipelago, China.

154. Lagenaria Seringe.

309. Lagenaria vulgaris Seringe.

Cultivated in alluvial and irrigated tracts.

Burm. *Bu-thee.*

DISTRIBUTION.—Cultivated throughout the tropics.

155. Luffa Cav.

310. Luffa ægyptiaca Mill.

Minbu district, generally cultivated.

DISTRIBUTION.—Cultivated throughout the tropics

311. Luffa acutangula Roxb.

Minbu district, generally cultivated.

DISTRIBUTION.—Rajputana, Upper Gangetic plain, Central India, Bengal, Assam, Burma, Laccadive islands, Ceylon.

156. Benincasa Savi.

312. Benincasa cerifera Savi.

Minbu district.

DISTRIBUTION.—Cultivated throughout the Eastern tropics.

157. Momordica Linn.

313. Momordica Charantia Linn.

Alluvial belt and irrigated tracts cultivated.

Burm. *Kyet-hinga.*

DISTRIBUTION.—Cultivated throughout the Eastern tropics.

314. Momordica macrophylla n. sp.

Branches angled and grooved, sparsely scurfily hairy in the grooves. Leaves petiolate, cordate, mucronate, with base cuneate at the insertion of the petiole, membranous glabrous or with a few scurfy hairs on the nerves, margin entire, basal nerves 3 including the midrib, the lateral ones almost at once dividing into two branches. Petiole 6 cm. long, with one or more warty glands, lamina of fully developed leaf 13·8-16 cm. long, 11-14 cm. broad at its widest part. Tendrils unbranched. Male flowers usually solitary on unbranched peduncles, sometimes three or four on as many pedicels, branching from a main peduncle. Peduncles shorter even than the petioles. Bract broadly reniform entire, about 3 cm. from base to apex, about 3·8 cm. in transverse diameter, at the top of the peduncle completely enclosing the male flower. Flower unexpanded about 2·2 cm. long. Sepals oblong acute, thick and rather fleshy in the bud, twisted, pubescent. Petals not seen expanded but apparently yellowish without a black base. Stamens three, two 2-anthered, one 1-anthered, filaments black. Female flowers not seen. Fruit covered with coarse soft spines about 3 mm. long.

Taepo, Tenasserim, 5,000 ft. *Gallatly*! Minbu district, *Shaik Mokim*!

This was first collected by Gallatly in 1877 in fruit. There is an immature fruit on the single sheet of his gathering in Calcutta Herbarium, and a note stating "the only plant of this met with. A large fruit is in spirit". Unfortunately the large fruit appears to have departed to that limbo where all such things go when there is

no proper museum wherein to preserve them. Since Gallatly collected this in 1879, the species appears never again to have been collected until brought from Minbu district in 1903.

Its nearest affinities appear to be with *Momordica dioica*, from which it differs markedly in having much larger leaves glandular petioles, considerably shorter peduncles, and coarser fruit spines.

158. Cucumis Linn.

315. Cucumis Melo Linn.

Cultivated in the alluvial belt.

Burm. *Tha-khwa-thee.*

DISTRIBUTION.—Cultivated throughout the tropics.

159. Citrullus Schrader.

316. Citrullus vulgaris Schrad.

Cultivated in the alluvial belt.

Burm. *Payé-thee.*

DISTRIBUTION.—Cultivated throughout the tropics.

160. Cephalandra Schrader.

317. Cephalandra indica Naud.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Malaya, Tropical Africa.

161. Cucurbita Linn.

318. Cucurbita maxima Duchesne.

Cultivated in the alluvial belt and irrigated tracts.

Burm. *Payon thee.*

DISTRIBUTION.—Throughout the tropics.

162. Mukia Arn.

319. Mukia scabrella Arn.

Minbu district.

DISTRIBUTION.—Throughout the Eastern tropics.

163. Zehneria Endl.

320. Zehneria umbellata Thw.

Nwamadaung hills.

DISTRIBUTION.—Throughout Tropical Asia and N. Australia.

164. Thladiantha Bunge.

321. Thladiantha calcarata C.B. Clarke (T. dubia of F. B. I. not of Bunge).

Arracan Yomahs, near Kan.

DISTRIBUTION.—Sikkim, Bengal, Assam, Burma.

165. Alsomitra Bth. & Hook. f.

322. Alsomitra sarcophylla Hook. f.

Myaung-u, Nwamadaung hills.

DISTRIBUTION.—Burma, Siam.

XLII.—CACTACEÆ.

166. Cereus Haw.

323. Cereus species.

Gwingyin. Used as a hedge, and grows to a height of 16 feet. Burm. *Tazaung-pyathat.*

167. Opuntia Mill.

324. Opuntia monacantha Haw.

Sidoktaya. Growing in the police compound. A native of South America, introduced into India and Australia.

XLIII.—FICOIDEÆ.

168. Trianthema Linn.

325. Trianthema crystallina Vahl.

Legain.

DISTRIBUTION.—Upper Gangetic plain, Punjab, Central and Peninsular India, Burma, Ceylon, Africa.

326. * Trianthema decandra Linn.

Bank of the Irawaddy.

DISTRIBUTION.—Peninsular India, Burma.

169. Mollugo Linn.

327. Mollugo hirta Thunb.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

328. Mollugo Spergula Linn.

Monmyin, Mon riverside.

DISTRIBUTION.—Upper Gangetic plain, Bengal, Central and Peninsular India, Burma, Ceylon, Tropical Africa and Australia.

170. Gisekia Linn.

329. Gisekia pharnaceoides Linn.

Minbu district.

DISTRIBUTION.—Upper Gangetic plain, Punjab, Scinde, Central and Peninsular India, Burma, Ceylon, Afghanistan, Africa.

XLIV.—UMBELLIFERÆ.

171. Pimpinella Linn.

330. *Pimpinella Leschenaultii DC.

Arracan Yomahs.

DISTRIBUTION.—Peninsular India, Burma, Ceylon

172. Fœniculum Adans.

331. Fœniculum vulgare Gærtn.

Cultivated in the alluvial belt and irrigated tracts

Burm. *Sa-mei.*

DISTRIBUTION.—Cultivated throughout India and Burma and adjacent countries.

173. Coriandrum Linn.

332. Coriandrum sativum Linn.

Cultivated in the alluvial belt and irrigated tracts

Burm. *Nan-nan-bin.*

DISTRIBUTION.—Cultivated throughout the tropics generally

XLV.—ARALIACEÆ.

174. Tupidanthus Hook. f. & T.

333. *Tupidanthus calyptratus Hook. f. & T.

Arracan Yomahs, near Kan.

DISTRIBUTION.—Assam, Burma, Malay Peninsula and Archipelago.

COROLLIFLORÆ.

XLVI.—RUBIACEÆ.

175. Sarcocephalus Afzel.

334. Sarcocephalus cordatus Miq.

Mon valley, near Sidoktaya.

DISTRIBUTION.—Burma, Ceylon, Cochin-China, Malay Archipelago, N. Australia.

176. **Adina** Salisb.

335. **Adina cordifolia** Hook. f.

Gwingyin.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Upper Gangetic plain, Bengal, Peninsular India, Burma, Ceylon, China.

177. **Mitragyna** Korth.

336. **Mitragyna parvifolia** Korth.

Minbu district.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Central and Peninsular India, Burma, Ceylon.

178. **Hymenodictyon** Wall.

337. **Hymenodictyon excelsum** Wall.

Ngape.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Assam, Burma, Central and Peninsular India, Malay Archipelago.

179. **Dentella** Forst.

338. **Dentella repens** Forst.

Mon valley.

DISTRIBUTION.—Bengal, Assam, Burma, Central and Peninsular India, Ceylon, Malay Peninsula and Archipelago, N. Australia.

180. **Oldenlandia** Linn.

339. **Oldenlandia umbellata** Linn.

Pyogingon.

DISTRIBUTION.—Peninsular India, Ceylon, Burma.

340. * **Oldenlandia alata** Kœn.

Sidoktaya.

DISTRIBUTION.—Peninsular India, Burma, Malay Archipelago.

341. **Oldenlandia nudicaulis** Roxb.

Sidoktaya.

DISTRIBUTION.—Sikkim, Assam, Burma, Upper Gangetic plain, Bengal, Peninsular India, Malay Archipelago.

181. **Randia** Linn.

342. **Randia dumetorum** Lamk.

Sidoktaya.

DISTRIBUTION.—Throughout the Eastern tropics.

182. Gardenia Linn.

343. Gardenia obtusifolia Roxb.

Nwamadaung hills.

DISTRIBUTION.—Burma.

344. Gardenia turgida Roxb.

Desert zone, very common.

Burm. *Thamin-sa-hpya-thee*, name of the fruit.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Upper Gangetic plain, Bengal, Assam, Burma, Peninsular India.

345. Gardenia erythroclada Kurz.

Nwamadaung hills.

DISTRIBUTION.—Burma.

183. Diplospora DC.

346. Diplospora confusa Hooker f.

Arracan Yomahs, near Kan.

DISTRIBUTION.—Burma.

184. Knoxia Linn.

347. Knoxia plantaginea Wall. VAR. glabrescens.

Sidoktaya.

DISTRIBUTION.—Burma.

This is the only gathering of this species received in Calcutta Herbarium since Wallich collected it in 1826 and Kurz more than 40 years later. The Minbu specimens resemble Kurz's solitary sheet No. 1433, in being almost glabrous, Wallich's specimens being hirsute.

185. Pavetta Linn.

348. Pavetta indica Linn. VAR. tomentosa.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, China, Malaya and N. Australia.

186. Morinda Linn.

349. Morinda tinctoria Roxb.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago.

350. Morinda persicæfolia Ham.
Sidoktaya.
DISTRIBUTION.—Chittagong, Burma, Siam, Malay Peninsula and Archipelago.

187. Rubia Linn.

351. Rubia angustissima Wall.
Arracan Yomahs, near Kan.
DISTRIBUTION.—Nepal, Sikkim, Burma.

XLVII.—COMPOSITÆ.

188. Vernonia Schreb.

352. Vernonia teres Wall.
Arracan Yomahs.
DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Central India, Assam, Burma.

353. Vernonia sp. ? nov.
Arracan Yomahs.
DISTRIBUTION.—Upper Burma.

354. Vernonia cinerea Less.
Pyogingon and Salin.
DISTRIBUTION.—Throughout the Eastern tropics.

355. Vernonia anthelmintica Willd.
Sagu.
DISTRIBUTION.—Throughout India and Burma, Malay Peninsula, Ceylon.

356. Vernonia gymnoclada Collet & Hemsley (Journ. Linn. Soc. Botany, Vol. XXVIII.)
Pyogingon.
DISTRIBUTION.—Upper Burma.

189. Elephantopus Linn.

357. Elephantopus scaber Linn.
Nwamadaung hills.
DISTRIBUTION.—Throughout the tropics.

190. Ageratum Linn.

358. Ageratum conyzoides Linn.
Pyogingon.
DISTRIBUTION.—Throughout the tropics.

191. Cyathocline Cass.

359. Cyathocline lyrata Cass.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma.

192. Grangea Forsk.

360. Grangea maderaspatana Poir.

Irawaddy bank.

DISTRIBUTION.—Throughout the Eastern tropics

193. Conyza Less.

361. Conyza semi-pinnatifida Wall.

Pyogingon.

DISTRIBUTION.—Bengal, Assam, Burma.

194. Blumea DC.

362. Blumea glomerata DC.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago, Philippine islands, China.

363. Blumea laciniata DC.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula and Archipelago, Philippine islands, China.

364. Blumea membranacea DC.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago.

365. Blumea balsamifera DC.

Mon valley, near Sidoktaya.

DISTRIBUTION.—Nepal, Sikkim, Assam, Chittagong, Burma, Malay Peninsula and Archipelago.

195. Laggera Sch. Bip.

366. Laggera flava Benth.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula.

367. Laggera pterodonta Benth.

Nwamadaung hills.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma, Peninsular India, Africa.

368. Laggera aurita Sch-Bip.

Mon river bank at Monmyin.

DISTRIBUTION.—Throughout India and Burma, Africa.

196. Sphæranthus Linn.

369. Sphæranthus peguensis Kurz.

Alluvial belt.

Burm. *Kodu-bin.*

DISTRIBUTION.—Burma.

370. Sphæranthus africanus Linn.

Alluvial belt and irrigated tracts.

DISTRIBUTION.—Throughout the Eastern tropics.

371. Sphæranthus indicus Linn.

Alluvial belt and irrigated tracts.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula and Archipelago, Africa, Australia.

197. Pterocaulon Elliott.

372. Pterocaulon cylindrostachyum Clarke.

Alluvial belt and irrigated tracts.

DISTRIBUTION.—Burma, Malay Peninsula, Philippine islands, Australia.

198. Gnaphalium Linn.

373. Gnaphalium indicum Linn.

Mon river bank at Monmyin.

DISTRIBUTION.—Throughout the Eastern tropics.

374. Gnaphalium pulvinatum Delile.

Alluvial belt and irrigated tract.

DISTRIBUTION.—Throughout India and Burma, Africa.

199. Inula Linn.

375. Inula Cappa DC.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma, Malay Archipelago, China.

200. Vicoa Cass.

376. Vicoa auriculata Cass.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

201. Xanthium Linn.

377. Xanthium Strumarium Linn.
Irawaddy banks.
DISTRIBUTION.—Throughout India and Burma, Ceylon.

202.* Enhydra Lour.

378. * Enhydra fluctuans Lour.
Minbu district.
DISTRIBUTION.—Bengal, Assam, Chittagong, Burma, Siam, Malay Archipelago, China.

203. Eclipta Linn.

379. Eclipta alba Hassk.
Irawaddy bank.
DISTRIBUTION.—Throughout the tropics.

204. Wedelia Jacq.

380. Wedelia Wallichii Less.
Arracan Yomahs.
DISTRIBUTION.—N.-W. Himalaya, Sikkim, Bengal, Assam, Burma, Malay Archipelago.

205. Spilanthes Linn

381. Spilanthes Acmella Linn.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

206. Cosmos Cav.

382. Cosmos sulphureus Cav.
Minbu district.
DISTRIBUTION.—Cultivated in Bengal, Assam, Burma.

207. Bidens Linn.

383. Bidens pilosa Linn.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

208. Artemisia Linn.

384. * Artemisia pallens Wall.
Minbu district, cultivated for its perfume.
DISTRIBUTION.—Peninsular India and Burma.
Placed amongst doubtful species in the Flora of British India, but described fully by Stapf, in Hooker's Icones Plantarum, Pl. 2597.

209. Emilia Cass.

385. **Emilia sonchifolia** DC.
Nwamadaung hills.
DISTRIBUTION.—Throughout the tropics.

210. * Goniocaulon Cass.

386. * **Goniocaulon glabrum** Cass.
Arracan Yomahs.
DISTRIBUTION.—Bengal, Central and Peninsular India, Burma.

211. Carthamus Linn.

387. **Carthamus tinctorius** Linn.
Minbu district, cultivated.
Burm. *Su-pan*.
DISTRIBUTION.—Cultivated throughout India and Burma.

212. Launea Cass.

388. **Launea asplenifolia** DC.
Irawaddy bank.
DISTRIBUTION.—Throughout India and Burma.

XLVIII.—CAMPANULACEÆ.

213. Sphenoclea Gærtn.

389. **Sphenoclea zeylanica** Gærtn
Minbu district.
DISTRIBUTION.—Throughout the tropics.

XLIX.—VACCINIACEÆ.

214. Vaccinium Linn.

390. **Vaccinium bancanum** Miq.
Arracan Yomahs near Kan.
DISTRIBUTION.—Burma, Malay Peninsula and Archipelago.

L.—PLUMBAGINACEÆ.

215. Plumbago.

391. **Plumbago zeylanica** Linn.
Legain.
DISTRIBUTION.—Throughout the Eastern tropics.

LI.—MYRSINACEÆ.

216. Maesa Forsk.

392. Maesa indica Wall.

Arracan Yomahs near Kan.

DISTRIBUTION.—Throughout the Eastern tropics

217. Ardisia Swartz.

393. Ardisia humilis Vahl.

Arracan Yomahs near Kan.

DISTRIBUTION.—Throughout India—exclusive of the western frontier regions—and Burma, Malay Archipelago, China.

LII.—SAPOTACEÆ.

218. Mimusops Linn.

394. Mimusops Elengi Linn.

Salin.

DISTRIBUTION.—Cultivated throughout the tropics

LIII.—EBENACEÆ.

219. Diospyros Linn.

395. Diospyros montana Roxb.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago, tropical Australia.

396. Diospyros burmanica Kurz.

Gwingyin and Myaung-u.

Burm. *Te-bin.*

DISTRIBUTION.—Burma.

397. Diospyros sp.

Arracan Yomahs.

A quite distinct species not represented in Calcutta Herbarium and most probably an undescribed species. Unfortunately it is only in fruit.

LIV.—OLEACEÆ.

220. Jasminum Linn.

398. Jasminum Sambac Ait.

Sinbok, cultivated.

DISTRIBUTION.—Throughout the tropics, cultivated.

221. Schrebera Roxb.

399. Schrebera swietenioides Roxb.

Nwamadaung hills.

DISTRIBUTION.—Bengal, Central and Peninsular India, Burma.

222. Ligustrum Linn.

400. Ligustrum robustum Bl

Arracan Yomahs.

DISTRIBUTION.—Bengal, Assam, Chittagong, Burma, Malay Archipelago.

LV.—SALVADORACEÆ.

223. Azima Lamk.

401 Azima sarmentosa Bth.

On walls of old pagodas along the Irawaddy bank

DISTRIBUTION.—Burma, Malay Archipelago, Philippine islands.

LVI. APOCYNACEÆ.

224. Carissa Linn.

402. Carissa Carandas Linn.

Gwingyin.

DISTRIBUTION.—Throughout the plains of India and Burma, Ceylon, Malay Peninsula and Archipelago.

225. Vinca Linn.

403. Vinca rosea Linn.

Pyogingon, cultivated.

DISTRIBUTION.—Widely cultivated in India and Burma. Indigenous to the West Indies.

226. Holarrhena Br.

404. Holarrhena antidysenterica Wall.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula.

227. Vallaris Burm.

405. Vallaris Heynei Spreng.

Common in the desert zone.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Peninsular India, Assam, Burma, Ceylon.

228. **Wrightia** Br.

406. Wrightia tomentosa Roem. & Schultes.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula.

229. **Thevetia** Linn.

407. Thevetia neriifolia Juss.

Sinbok, cultivated

DISTRIBUTION.—Cultivated generally throughout India and Burma.

230. **Ichnocarpus** Br.

408. Ichnocarpus frutescens Br.

Minbu district.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Assam, Chittagong, Burma, Central and Peninsular India, Ceylon, Malay Archipelago, Australia.

LVII.—ASCLEPIADACEÆ.

231. **Cryptolepis** Br.

409. Cryptolepis Buchanani Roem. & Schultes.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

232. **Atherolepis** Hook. f.

410. Atherolepis Wallichii Hook. f.

Mon valley near Sidoktaya.

DISTRIBUTION.—Burma.

233. **Streptocaulon** W. & A.

411. Streptocaulon tomentosum W. & A.

Common in the desert zone.

DISTRIBUTION.—Burma, China.

234. **Myriopteron** Griff.

412. Myriopteron paniculatum Griff.

Mon valley near Sidoktaya.

DISTRIBUTION.—Assam, Chittagong, Burma, Malay Archipelago.

235. Oxystelma Br.

413. Oxystelma esculentum Br.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago.

236. Calotropis Br.

414. Calotropis procera Br.

Common throughout the district.

DISTRIBUTION.—Throughout the plains of India and Burma, Afghanistan, Baluchistan, Persia, tropical Africa.

237. Raphistemma Wall.

115. Raphistemma pulchellum Wall.

Sidoktaya.

DISTRIBUTION.—Sikkim, Assam, Burma.

238. Holostemma Br.

416. Holostemma Rheedii Wall.

Minbu district.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Western and Peninsular India, Bengal, Burma.

239. Sarcostemma Br.

417 *Sarcostemma Brunonianum W. & A.

Road to Salin.

DISTRIBUTION.—Peninsular India, Ceylon, Burma.

240. Gymnema Br.

418. Gymnema tingens W. & A.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma, Bengal, Peninsular India, China.

241. Marsdenia Br.

419. Marsdenia tenacissima W. & A.

Minbu district.

DISTRIBUTION.—N.-W. Himalaya, Sikkim, Upper Gangetic plain, Bengal.

242. Pergularia Linn.

420. Pergularia pallida W. & A.

Minbu district.

DISTRIBUTION.—Throughout India and Burma.

243. Lygisma Hook. f.

421. Lygisma angustifolia Hook. f.

Minbu district.

DISTRIBUTION.—Burma.

244. Tylophora Br.

422.* Tylophora tenerrima Wight.

Nwamadaung hills.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Burma.

423. Tylophora asthmatica W. & A.

Minbu district.

DISTRIBUTION.—Bengal, Assam, Chittagong, Burma, Peninsular India, Ceylon, Siam, Malay Archipelago.

245. Leptadenia Br.

424. Leptadenia reticulata W. & A.

Minbu district.

DISTRIBUTION.—Punjab, Central India and Peninsular India, Burma, Ceylon, Malay Peninsula.

246. Boucerosia W. & A.

425. Boucerosia umbellata W. & A.

Legain.

DISTRIBUTION.—Burma, Peninsular India, Ceylon.

In addition to the plants above enumerated belonging to this order, about half a dozen other species were collected, all in fruit, which have not been matched in the Calcutta Herbarium, and are too incomplete accordingly to describe.

LVIII.—LOGANIACEÆ.

247. Buddleia Linn.

426. Buddleia asiatica Lour.

Common throughout the district.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula and Archipelago, China.

248. Fagræa Thunb.

427. Fagræa obovata Wall.

Arracan Yomahs.

DISTRIBUTION.—Peninsular India, Ceylon, Bhutan, Assam, Chittagong, Burma, Malay Peninsula and Archipelago.

LIX.—GENTIANACEÆ.

249. Canscora Lamk.

428. Canscora diffusa Br.

Nwamadaung hills.

DISTRIBUTION.—Throughout the Eastern tropics.

250. Limnanthemum S. P Gmel.

429. Limnanthemum indicum Thw.

Salin lake.

DISTRIBUTION.—Throughout the Eastern tropics.

The plants in Salin lake showed distinct dimorphism in the styles which were either quite short or absent or long.

LX.—BORAGINACEÆ.

251. Cordia Linn.

430. Cordia Myxa Linn. VAR. brunnea.

Irawaddy bank, near Semon.

Burm. *Thanat-bin*

DISTRIBUTION.—Throughout the Eastern tropics.

252. Coldenia Linn.

431. Coldenia procumbens Linn.

Throughout the district.

DISTRIBUTION.—Throughout the tropics.

253. Heliotropium Linn.

432. *Heliotropium supinum Linn. VAR. malabarica.

Minbu district.

DISTRIBUTION.—Punjab, Upper Gangetic plain, Bengal, Central and Peninsular India, Western Asia, Southern Europe, tropical Africa.

433. *Heliotropium ovalifolium Forsk.

Sandy bed of Mon river at Monmyin.

DISTRIBUTION.—Bengal, Central and Peninsular India, Burma, tropical Africa and Australia.

434. Heliotropium strigosum Willd. VAR. brevifolia.

Minbu district.

DISTRIBUTION, of the variety.—Throughout India and Burma.

435 Heliotropium indicum Linn.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

254. Trichodesma Br.

436. Trichodesma indicum, Br.

Minbu district.

DISTRIBUTION.—Throughout India —including the Bengal plain— and Burma, Western Asia, East African islands.

LXI. CONVOLVULACEÆ.

255. Argyreia Lour.

437. Argyreia Burneyi n. sp.

A scandent shrub, branches terete, as thick as a goose quill or pencil, covered with a dense soft silky grey tomentum. Leaves petiolate, cordate, entire, apex blunt and basal sinus large, upper surface of lamina sparsely tomentose, lower surface and petiole covered, like the branches, with a dense soft silky grey tomentum. Lateral nerves prominent on lower surface 10-11 pairs. Petiole about 5·6 cm. long, lamina about 13·8—15 cm. from insertion of petiole to apex, and about 20-23·8 cm. broad at its widest part. Flowers in terminal corymbose peduncled cymes, densely tomentose, peduncles 3-flowered. Outer bracts large, petioled, leaf-like, cordate, acute, with base obtuse, exceeding the cymes, inner bracts small, sessile, densely tomentose. Sepals tomentose without and within, 3 outer broadly oval 1·8 cm long, 1·4 cm. broad, 2 inner smaller 1·2 cm. long and 9 mm. broad, cordate-acuminate with base obtuse. Corolla funnel-shaped 6 5 cm. long, softly hairy externally. Fruit not seen.

Ava, *Mrs. Burney*! Minbu district, *Shaik Mokim*!

This species comes nearest to *Argyreia Roxburghii* Choisy, from which it is, however, easily enough distinguished by the large size of its leaves, its closer denser tomentum all over, its considerably fewer flowered cymes, and its large calyx. The species was first collected by Mrs. Burney, wife of Colonel Henry Burney, resident at the court of Ava from 1830 to 1837, and her specimen was the only one in the Calcutta Herbarium until the present specimens were collected in Minbu in 1903.

438. Argyreia Hooke C. B. Clarke.

Paunglin.

DISTRIBUTION.—Sikkim, Assam, Burma.

256. Lettsomia Roxb

439. Lettsomia campanuliflora n. sp.

A scandent shrub, branches slender terete, as thick as a crow-quill, sparsely adpressedly strigose, internodes from about 3·8 to 6 cm. long. Leaves petiolate, entire, ovate, mucronulate, petiole and both surfaces of lamina adpressedly strigose, the upper finely and sparsely. Petiole about 1·8 cm. long, lamina 6·8 cm. long and 4 cm. broad Flowers axillary, solitary or sometimes in pairs. Peduncle short about 1 cm. long, strigose with three or four small scantily hairy bracts less than half the size of the sepals surrounding the base of the calyx. Sepals glabrous, broadly ovate, outer 1·8 cm. long and 1 cm. broad, inner somewhat narrower and shorter, corolla glabrous, campanulate 2·5 cm. long, 1·8 cm. in diameter. Stamens 5, included. Ovary imbedded in a prominent annular disc, bi-locular, 4-ovuled. Fruit a dry berry the size of a large pea, included in the calyx.

Sidoktaya, base of the Arracan Yomahs, Minbu district, Upper Burma, October 1902, *Shaik Mokim*!

This is quite different from any species of *Lettsomia* in the Calcutta Herbarium. It would appear to come nearest to *L. confusa* Prain.

440. Lettsomia setosa Roxb.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

441. *Lettsomia pallida Prain (Journ. Asiat. Soc., Bengal, Vol. LXIII, II, 1894

Minbu district.

DISTRIBUTION.—Burma.

257. Blinkworthia Choisy.

442. Blinkworthia lycioides Choisy.

Nwamadaung hills.

DISTRIBUTION.—Burma.

258. Calonyction Choisy.

443. Calonyction muricatum Don.

Salin.

DISTRIBUTION.—Cultivated generally throughout India and Burma, and distributed throughout the tropics.

259. Quamoclit Moench.

444. Quamoclit phœnicea Choisy. *Ipomœa coccinea* Linn. of F.B.I. Gwingyin.

DISTRIBUTION.—Cultivated throughout India and Burma, native to tropical America.

445. Quamoclit pinnata Boj. *Ipomœa Quamoclit* Linn. of F.B.I. Minbu district.

DISTRIBUTION.—Like the last.

260. Pharbitis Choisy.

446. Pharbiti sNil Choisy. *Ipomœa hederacea* Jacq of F.B.I. Arracan Yomahs.

DISTRIBUTION.—Throughout the tropics.

261. Aniseia Choisy.

447. * Aniseia calycina Choisy. *Ipomœa calycina* Benth. of F.B.I. Minbu district.

DISTRIBUTION.—Bengal, Central and Peninsular India, Burma.

262. Ipomœa Linn.

448. Ipomœa Batatas Lamk.

Cultivated in the Mon valley and at Salin.

Burm *Kasun-u.*

DISTRIBUTION.—Cultivated in places throughout India, Burma and the Malay Peninsula. Native to tropical America.

449. Ipomœa Pes-tigridis Linn.

Minbu district.

DISTRIBUTION.—Throughout the Eastern tropics.

450. Ipomœa tridentata Roth.

Minbu district.

DISTRIBUTION.—Bengal, Central, West and Peninsular India, Burma, Malay Peninsula and Archipelago.

451. Ipomœa chryseides Ker.

Minbu district.

DISTRIBUTION.—Throughout the Eastern tropics.

452. * Ipomœa reniformis Choisy.

Minbu district.

DISTRIBUTION.—Upper Gangetic plain, Bengal, Central and Peninsular India, Ceylon, Burma, Malay Archipelago, tropical Africa

453. Ipomœa obscura Ker.

Pyogingon.

DISTRIBUTION.—Throughout the Eastern tropics.

454. Ipomœa sepiaria Kœn.

Salin.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago.

455. Ipomœa aquatica Forsk.

Paunglin Lake.

DISTRIBUTION.—Throughout the Eastern tropics.

456. Ipomœa campanulata Linn.

Arracan Yomahs.

DISTRIBUTION.—Peninsular India, Ceylon, Burma, Malay Peninsula and Archipelago.

457. Ipomœa petaloidea Choisy. VAR. linearifolia *Kurz*.

Arracan Yomahs.

DISTRIBUTION, of the variety.—N.-W. Himalaya, Burma.

458. Ipomœa Turpethum Br.

Nwamadaung hills.

DISTRIBUTION.—Throughout the Eastern tropics.

459. Ipomœa Edithæ n. sp.

Stems terete, twining, slender, puberulous. Leaves petioled, entire, narrowly lanceolate, acute or acuminate, slightly puberulous or glabrous above, tomentose beneath, midrib prominent beneath, lateral nerves obscure, petiole about 1 cm. long, lamina 5·6—7·5 cm. long, 1·5—2·5 cm. broad. Flowers axillary, solitary or in pairs, seldom in threes on a common peduncle. Peduncle as long as the petiole, sparsely puberulous or glabrescent, with two or more minute subulate bracts surrounding the base of the pedicel. Pedicels as long as the peduncle, puberulous. Calyx 1·8 cm. long, sepals equal, lanceolate-acute, slightly puberulous or glabrous. Corolla funnel-shaped, 8 cm. long, hairy externally. Stamens well-included. Ovary bi-locular, style filiform, longer than the stamens, dividing above into two short arms ending in capitate stigmas. Capsule ovoid, with a hairy apex, otherwise glabrous, 1·4 cm. in diameter, 2-celled, 4-seeded. Seeds glabrous.

Sidoktaya and Arracan Yomahs, *Shaik Mokim*!

This species is very distinct, but would appear to come after *I. Turpethum*, from which it is easily distinguished by its leaves, the greater regularity of its cymes, and its considerably smaller and ovoid capsule.

460. Ipomœa vitifolia Sweet.
Nwamadaung hills.
DISTRIBUTION.—Throughout India and Burma, Ceylon, Andaman islands, Malay Peninsula and Archipelago.

461. *Ipomœa pulchella Roth. *I. palmata* of F.B.I., not of Forsk.
Minbu district.
DISTRIBUTION.—Peninsular India and Burma.

462. * Ipomœa gracillima Prain (Journ. Asiatic Soc. Bengal, Vol. LXIII, II 1894).
Minbu district.
DISTRIBUTION.—Burma.

263. Jacquemontia Choisy.

463. Jacquemontia paniculata Hallier (Bulletin de L'Herbier Boissier Vol. V, 1897) *Convolvulus parviflorous* Vahl. of F.B.I.
DISTRIBUTION.—Throughout the Eastern tropics.

264. Cuscuta Linn.

464. Cuscuta reflexa Roxb.
Sinbok.
DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago.

LXII. SOLANACEÆ.

265. Solanum Linn.

465. Solanum nigrum Linn.
Irawaddy bank.
DISTRIBUTION.—Cosmopolitan.

466. Solanum verbascifolium Linn.
Arracan Yomahs.
DISTRIBUTION.—Throughout Tropical Asia, Australia and America.

467. Solanum torvum Sw.
Mon valley, near Sidoktaya.
Burm. *Khayan-kasaw.*
DISTRIBUTION.—Tropical Asia and America.

468. Solanum indicum Linn.
Common in the alluvial belt.
DISTRIBUTION.—Tropical Asia.

469. Solanum Melongena Linn.

Minbu, cultivated.

Burm. *Khayan-thee.*

DISTRIBUTION.—Cultivated throughout the tropics.

470. Solanum xanthocarpum Schrad. & Wendl.

Common in the desert zone.

DISTRIBUTION.—Tropical Asia and Australia.

266. Lycopersicum Miller.

471. Lycopersicum esculentum Miller.

Cultivated throughout the district, berries quite small.

DISTRIBUTION.—Cultivated throughout India and Burma, native of tropical America.

267. Capsicum Linn.

472. Capsicum frutescens Linn. *C. minimum* of F.B.I.

Salin

DISTRIBUTION.—Cultivated throughout India and Burma, Malay Peninsula and Archipelago.

268. Withania Jacq.

473. Withania somnifera Dunal.

Pyogingon and Legain.

DISTRIBUTION.—Throughout the drier parts of India and Western Asia, Southern Europe and South Africa.

269. Datura Linn.

474. Datura fastuosa Linn. VAR. alba.

Alluvial belt, common.

DISTRIBUTION.—Eastern tropics.

270. Nicotiana Linn.

475. Nicotiana Tabacum Linn.

Cultivated throughout the district.

DISTRIBUTION.—Cultivated throughout the tropics.

LXIII.—SCROPHULARIACEÆ.

271. Celsia Linn.

476. Celsia coromandeliana Vahl.

Alluvial belt.

DISTRIBUTION.—Throughout Afghanistan, India and Burma, Ceylon, China.

272. **Linaria** Juss.

477. Linaria ramosissima Wall.

Salin, growing on old walls.

DISTRIBUTION.—From Afghanistan to Burma, and from the Punjab to Ceylon.

273. **Lindenbergia** Lehm.

478. Lindenbergia philippensis Benth.

Irawaddy bank and Gwingyin.

DISTRIBUTION.—Assam, Chittagong, Burma, Siam, China, Philipine islands.

479. Lindenbergia urticæfolia Lehm.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Afghanistan.

274. **Herpestis** Gærtn.

480. Herpestis Monniera H.B.K.

Salin lake margin and at Sidoktaya.

DISTRIBUTION.—Throughout the tropics.

275. **Dopatrium** Hamilt.

481. Dopatrium junceum Ham.

Minbu district.

Throughout India and Burma, Ceylon, Malay Archipelago, Australia, China, Philippine islands, Japan.

276. **Torenia** Linn.

482. Torenia cordifolia Roxb.

Nwamadaung hills.

DISTRIBUTION.—N.W., Central and Eastern Himalayas, Bengal, Peninsular India, Burma, China, Malay Archipelago.

277. **Vandellia** Linn.

483. Vandellia crustacea Benth.

Minbu district.

DISTRIBUTION.—Eastern tropics.

484. Vandellia erecta Benth.

Minbu district.

DISTRIBUTION.—From Central Europe to China, Japan, and Polynesia.

278. Bonnaya Link & Otto.

485. Bonnaya brachiata Link & Otto.
Minbu district.
DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, China, Philippine islands.

279. Alectra Thunb.

486. Alectra indica Benth
Arracan Yomahs.
DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Assam, Burma, Mauritius.

280. Buchnera Linn.

487. Buchnera cruciata Ham.
Arracan Yomahs.
DISTRIBUTION.—Nepal, Assam, Burma, Malay Archipelago, China.

281. Striga Lour.

488. Striga lutea Lour.
Minbu district.
DISTRIBUTION.—Eastern tropics.

489. Striga euphrasioides Benth.
Sagu.
DISTRIBUTION.—Throughout India (including Bengal) and Burma, Ceylon, Malay Archipelago.

490. Striga Masuria Benth.
Minbu district.
DISTRIBUTION.—Nepal, Burma, Peninsular India, China, Philippine islands.

LXIV.—OROBANCHACEÆ

282. Ægineti a Linn.

491. Ægineti a indica Roxb.
Sidoktaya.
DISTRIBUTION.—Throughout Eastern Asia.

LXV.—LENTIBULARIACEÆ.

283. Utricularia Linn.

492. Utricularia flexuosa Vahl.
Salin lake.
DISTRIBUTION.—Tropical Asia and Australia.

493. Utricularia exoleta Br.

Salin lake.

DISTRIBUTION.—As the last species.

LXVI.—BIGNONIACEÆ.

284. Millingtonia Linn. f.

494. Millingtonia hortensis Linn. f.

Sagu.

DISTRIBUTION.—Burma. Planted generally in the tropics.

285. Oroxylum Vent.

495. Oroxylum indicum Vent.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Cochin-China, Malay Archipelago.

286. Tecoma Juss.

496. Tecoma stans Juss.

Minbu district, planted.

DISTRIBUTION.—Cultivated in places throughout India and Burma. Native of tropical America.

287. Dolichandrone Seem.

497. Dolichandrone stipulata Benth.

Nwamadaung hills.

DISTRIBUTION.—Burma.

498. Dolichandrone Rheedii Seem.

Nwamadaung hills.

DISTRIBUTION.—Peninsular India, Ceylon, Burma, Andaman islands, Malay Peninsula and Archipelago.

288. Heterophragma DC.

499. Heterophragma sulfureum Kurz.

Nwamadaung hills.

DISTRIBUTION.—Burma.

500. Heterophragma adenophyllum Seem.

Arracan Yomahs.

DISTRIBUTION.—Assam, Chittagong, Burma, Andaman islands.

289. Stereospermum Cham.

501. Stereospermum chelonoides DC.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma.

LXVII.—PEDALINEÆ.

290. Sesamum Linn.

502. Sesamum indicum DC.

Cultivated in the desert zone.

DISTRIBUTION.—Cultivated throughout the tropics.

291. Martynia Linn.

503. Martynia diandra Glox.

Gwingyin.

DISTRIBUTION.—Common throughout India and Burma; introduced from tropical America.

LXVIII.—ACANTHACEÆ.

292. Thunbergia Linn. f.

504. Thunbergia laurifolia Lindl.

Mon valley, Arrakan Yomahs.

DISTRIBUTION.—Burma, Malay Peninsula, Andamans.

293. Nelsonia Br.

505. Nelsonia campestris Br.

Nwamadaung hills.

DISTRIBUTION.—Throughout the tropics.

294. Hygrophila Br.

506. Hygrophila spinosa T. Anders.

Pyogingon.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

295. Nomaphila Blume.

507. Nomaphila Parishii T. Anders.

Minbu district.

DISTRIBUTION.—Burma, Malay Archipelago.

296. Ruellia Linn.

508. * Ruellia prostrata Lamk.

Salin.

DISTRIBUTION.—Bengal, Central and Peninsular India, Burma.

297. Dædalacanthus T. Anders.

509. Dædalacanthus macrophyllus T. Anders.

Arracan Yomahs.

DISTRIBUTION.—Burma.

510. Dædalacanthus tetragonus T. Anders.

Arracan Yomahs.

DISTRIBUTION.—Burma.

511. * Dædalacanthus purpurascens T. Anders.

Nwamadaung hills.

DISTRIBUTION.—Bengal, Central and Peninsular India, Assam, Burma.

298. Hemigraphis Nees.

512. Hemigraphis elegans Nees.

Arracan Yomahs.

DISTRIBUTION.—Burma.

513. Hemigraphis glaucescens C. B. Clarke.

Arracan Yomahs.

DISTRIBUTION.—Burma.

299. Strobilanthes Blume.

514. Strobilanthes scaber Nees.

Minbu district.

DISTRIBUTION.—Bengal, Assam, Burma.

515. Strobilanthes phyllostachyus Kurz.

Arracan Yomahs.

DISTRIBUTION.—Burma.

300. Blepharis Juss.

516. Blepharis bœrhaaviæfolia Pers.

Minbu district.

DISTRIBUTION.—Bengal, Central and Peninsular India, Ceylon, Burma, tropical Africa.

301. **Barleria** Linn.

517. **Barleria Prionitis** Linn.
Gwingyin. Common in the desert zone.
DISTRIBUTION.—Eastern tropics.

518. **Barleria cristata** Linn
Arracan Yomahs.
DISTRIBUTION.—Throughout India and Burma, Malaya and China.

519. **Barleria strigosa** Willd.
Sidoktaya.
DISTRIBUTION.—Sikkim, Bengal, Assam, Burma, Malaya, generally cultivated.

302. **Neuracanthus** Nees.

520. **Neuracanthus tetragonostachyus** Nees.
Nwamadaung hills.
DISTRIBUTION.—Burma.

303. **Eranthemum** Linn.

521. **Eranthemum album** Nees.
Arracan Yomahs.
DISTRIBUTION.—Chittagong, Burma, Malay Peninsula, Andaman islands.

304. **Andrographis** Wall.

522. **Andrographis echioides** Nees.
Minbu district.
DISTRIBUTION.—Throughout the dry regions of India and Burma, Ceylon.

305. **Cystacanthus** T. Anders.

523. **Cystacanthus insignis** C. B. Clarke.
Arracan Yomahs.
DISTRIBUTION.—Burma.

306. **Lepidagathis** Willd.

524. **Lepidagathis dulcis** Nees.
Sidoktaya.
DISTRIBUTION.—Burma.

525. **Lepidagathis hyalina** Nees.
Arracan Yomahs.
DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Assam, Chittagong, Burma, Malaya, Ceylon, China.

307. Justicia Linn.

526. Justicia Betonica Linn.
Minbu district.
DISTRIBUTION.—Throughout India and Burma, Ceylon, Malaya, tropical Africa.

527. Justicia decussata Roxb.
Arracan Yomahs.
DISTRIBUTION.—Burma.

528. * Justicia khasiana C. B. Clarke.
Arracan Yomahs.
DISTRIBUTION.—Assam, Burma.

529. Justicia simplex Don.
Nwamadaung hills.
DISTRIBUTION.—Eastern tropics.

308. Adhatoda Nees.

530. Adhatoda vasica Nees.
Minbu district.
DISTRIBUTION.—Tropical Asia.

309. Rhinacanthus Nees.

531. Rhinacanthus communis Nees.
Minbu district.
DISTRIBUTION.—Cultivated generally in the Eastern tropics.

310. Dicliptera Juss.

532. Dicliptera riparia Nees.
Pyogingon.
DISTRIBUTION.—Burma.

311. Peristrophe Nees.

533. Peristrophe bicalyculata Nees.
Minbu district.
DISTRIBUTION.—Throughout India and Burma, tropical Africa.

LXIX.—VERBENACEÆ.

312. Lippia Linn.

534. Lippia nodiflora Rich.
Common on river shores and alluvial meadows.
DISTRIBUTION.—Throughout the tropics and warm temperate zone.

312. Stachytarpheta Vahl.

535. **Stachytarpheta indica** Vahl.
Pyogingon.
DISTRIBUTION.—Tropical Asia and America.

314. Priva Adans.

536. * **Priva leptostachya** Juss.
Minbu district.
DISTRIBUTION.—Peninsular India, Burma, tropical Africa.

315. Tectona Linn. f.

537. **Tectona grandis** Linn. f.
Nwamadaung hills, common.
DISTRIBUTION.—Orissa, Central and Peninsular India, Burma, Malay Peninsula and Archipelago.

538. **Tectona Hamiltoniana** Wall.
Nwamadaung hills, common.
Burm. *Dahat-pin.*
DISTRIBUTION.—Burma.

316. Premna Linn.

539. * **Premna latifolia** Roxb.
Gwingyin, and base of Arracan Yomahs.
Burm. *Seiknan-gyi.*
DISTRIBUTION.—Bengal, Peninsular India, Burma.

317. Gmelina Linn.

540. **Gmelina arborea** Linn.
Minbu district.
DISTRIBUTION.—General throughout India, Chittagong, Burma, Malay Archipelago, Philippine islands.

318. Vitex Linn.

541. **Vitex limonifolia** Wall.
Minbu district.
DISTRIBUTION.—Burma.

542. **Vitex canescens** Kurz.
Nwamadaung hills.
DISTRIBUTION.—Assam, Burma.

543. Vitex peduncularis Wall. VAR. Roxburghiana.
Nwamadaung hills.
DISTRIBUTION.—Bengal, Assam, Burma.

319. Clerodendron Linn.

544. Clerodendron infortunatum Gærtn.
Arracan Yomahs.
DISTRIBUTION.—Throughout India and Burma, Malaya.

545. Clerodendron Siphonanthus Br.
Pyogingon.
DISTRIBUTION.—Cultivated generally throughout the tropics.

320. Hymenopyramis Wall.

546. Hymenopyramis brachiata Wall.
Minbu district.
DISTRIBUTION.—Burma, cultivated generally in India.

321. Symphorema Roxb.

547. * Symphorema involucratum Roxb.
Nwamadaung hills.
DISTRIBUTION.—Bengal, Peninsular India, Ceylon, Burma.

322. Congea Roxb.

548. Congea tomentosa Roxb.
Nwamadaung hills.
DISTRIBUTION.—Assam, Chittagong, Burma, Siam.

LXX.—LABIATÆ.

323. Ocimum Linn.

549. Ocimum canum Sims.
Common in the alluvial belt.
Burm. *Pin-sein.*
DISTRIBUTION.—Eastern tropics.

550. Ocimum Basilicum Linn.
Nwamadaung hills and Mon valley.
DISTRIBUTION.—Eastern tropics.

324. Moschosma Reichb.

551. Moschosma polystachyum Benth.
Pyogingon.
DISTRIBUTION.—Eastern tropics and Australia.

325. Orthosiphon Benth.

552. Orthosiphon rubicundus Benth.
Sidoktaya.
DISTRIBUTION.—N.-W. Himalaya, Nepal, Bengal, Peninsular India, Burma.

553. * Orthosiphon Parishii Prain. (Journ. Asiat. Soc., Bengal, Vol. LIX, II, 1890.)
Sidoktaya.
DISTRIBUTION.—Burma.

326. Plectranthus L'Herit.

554. * Plectranthus hispidus Benth.
Arracan Yomahs.
DISTRIBUTION.—Assam, Burma.

327. Anisochilus Wall.

555. Anisochilus carnosus Wall. VAR. purpurascens *Benth.*
DISTRIBUTION, of the variety.—Burma.

328. Anisomeles Br.

556. Anisomeles candicans Benth.
Arracan Yomahs.
DISTRIBUTION.—Burma.

329. Colquhounia Wall.

557. Colquhounia elegans Wall.
Arracan Yomahs.
DISTRIBUTION.—Burma.

330. Leucas Br.

558. * Leucas mollissima Wall.
Salin.
DISTRIBUTION.—Throughout India and Burma, Ceylon, China.

559. Leucas pilosa Benth.
Salin.
DISTRIBUTION.—Burma.

560. Leucas nutans Spreng.
Arracan Yomahs.
DISTRIBUTION.—Throughout India and Burma.

561. Leucas involucrata Benth. *L. zeylanica* of F. B. I.
Minbu district.

DISTRIBUTION.—Assam, Chittagong, Burma, Malay Peninsula and Archipelago, Ceylon, China.

331. Gomphostemma Wall

562. Gomphostemma strobilinum Wall.
Sidoktaya.
DISTRIBUTION.—Burma.

INCOMPLETÆ.

LXXI.—NYCTAGINEÆ.

332. Bœrhaavia Linn.

563. Bœrhaavia repens Linn.
Common throughout the district.
DISTRIBUTION.—Throughout the tropics.

564. Bœrhaavia repanda Willd.
Gwingyin, common.
DISTRIBUTION.—Western frontiers, Upper Gangetic plain, Bengal, Peninsular India, Burma.

LXXII.—AMARANTACEÆ.

333. Deeringia Br.

565. Deeringia celosioides Br.
Minbu district.
DISTRIBUTION.—Throughout India and Burma, Malay Archipelago, China, Australia.

334. Celosia Linn.

566. Celosia argentea Linn.
Minbu district, cultivated.
DISTRIBUTION.—Throughout the tropics.

567. Celosia cristata Linn.
Minbu district, cultivated.
DISTRIBUTION.—Throughout the tropics.

335. Digera Forsk.

568. Digera arvensis Forsk.
Irawaddy bank.
DISTRIBUTION.—Eastern tropics.

336. Amarantus Linn.

569. Amarantus spinosus Linn.

Irawaddy bank.

DISTRIBUTION — Throughout the tropics.

570. Amarantus paniculatus Linn.

Minbu district, cultivated.

DISTRIBUTION.—Eastern tropics, cultivated or as an escape.

571. Amarantus gangeticus Linn.

Minbu district, cultivated.

DISTRIBUTION.—Throughout the tropics, cultivated.

572. Amarantus viridis Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

573. Amarantus Blitum Linn.

Irawaddy bank.

DISTRIBUTION.—Cosmopolitan.

337. Pupalia Juss.

574. Pupalia lappacea Moq. VAR. velutina.

Minbu district.

DISTRIBUTION.—Eastern tropics.

338. Nothosærua Wight.

575. Nothosærua brachiata Wight.

Salin.

DISTRIBUTION.—Throughout India and Burma, Ceylon, tropical Africa.

339. Ærua Forsk.

576. Ærua javanica Juss.

Sinbok and Minbu.

Burm. *On-bwè.*

DISTRIBUTION.—Eastern tropics.

577. Ærua scandens Wall.

Myaung-u.

DISTRIBUTION.—Eastern tropics.

578. Ærua Monsonia Moq.

Arracan Yomahs.

DISTRIBUTION.—Bengal, Central and Peninsular India, Burma.

340. Achyranthes Linn.

579. Achyranthes aspera Linn.

Throughout the district.

DISTRIBUTION.—Throughout the tropics.

341. Alternanthera Forsk.

580. Alternanthera sessilis Br.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

342. Gomphrena Linn.

581. Gomphrena globosa Linn.

Arracan Yomahs, cultivated by the Chins.

DISTRIBUTION.—Cosmopolitan.

LXXIII.—CHENOPODIACEÆ.

343. Chenopodium Linn.

582. Chenopodium album Linn.

Irawaddy bank.

Burm. *Myu.*

DISTRIBUTION.—Cosmopolitan.

LXXIV.—POLYGONACEÆ.

344. Polygonum Linn.

583. Polygonum plebejum Br.

Common throughout the district.

DISTRIBUTION.—Eastern tropics.

584. Polygonum tomentosum Willd.

Minbu district.

DISTRIBUTION.—Bengal, Central and Peninsular India, Assam, Burma, Malay Peninsula, Andaman islands, tropical Africa.

585. Polygonum limbatum Meisn.

Paunglin lake shore.

DISTRIBUTION.—Upper Gangetic Plain, Bengal, Central and Peninsular India, Burma, tropical Africa.

586. Polygonum glabrum Willd.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

587. **Polygonum lapathifolium** Linn.
Minbu district.
DISTRIBUTION.—Cosmopolitan.

588. **Polygonum stagninum** Ham.
Minbu district.
DISTRIBUTION.—Throughout India and Burma, China.

589. **Polygonum barbatum** Linn.
Mon valley.
DISTRIBUTION.—Throughout India and Burma, China, Malay Peninsula and Archipelago, Australia, Africa.

590. **Polygonum chinense** Linn. VAR. ovalifolia.
Arracan Yomahs.
DISTRIBUTION.—Throughout India and Burma, Malay Peninsula.

345. Rumex Linn.

591. **Rumex maritimus** Linn.
Irawaddy bank, common.
DISTRIBUTION —Cosmopolitan.

592. **Rumex dentatus** Linn.
Irawaddy bank.
DISTRIBUTION.—Throughout India and Burma.

LXXV.—ARISTOLOCHIACEÆ.

346. Aristolochia Linn.

593. **Aristolochia indica** Linn.
Sinbok.
Burm. *Eikthaya-moolee*.
DISTRIBUTION.—Throughout India, Burma, and Ceylon.

594. **Aristolochia Tagala** Cham. & Schlecht. *A. Roxburghiana* of F.B.I.
Minbu district.
DISTRIBUTION.—Sikkim, Bengal, Assam, Chittagong, Burma, Central and Peninsular India, Ceylon, Malay Peninsula and Archipelago.

LXXVI.—PIPERACEÆ.

347. Piper Linn.

595. **Piper Betle** Linn.
Mon valley, cultivated.
DISTRIBUTION.—Cultivated in the hotter regions of India, Burma, Ceylon, and Malay Archipelago.

LXXVII.—LAURINEÆ.

348. Cinnamomum Bl.

596. * Cinnamomum Tamala Nees.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Assam, Burma.

597. Cinnamomum obtusifolium Nees.

Arracan Yomahs.

DISTRIBUTION.—Central and Eastern Himalayas, Assam, Chittagong, Burma, Andaman islands.

LXXVIII.—LORANTHACEÆ.

349. Loranthus Linn.

598. Loranthus pentapetalus Roxb.

Arracan Yomahs.

DISTRIBUTION.—Central and Eastern Himalayas, Assam, Chittagong, Burma, Malay Peninsula and Archipelago, China.

599. Loranthus Scurrula Linn.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula.

600. Loranthus pulverulentus *Wall.*

Gwingyin. Parasitic upon *Helaptelea integrifolia* Planch.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Assam, Burma, Central and Peninsular India.

350. Viscum Linn.

601. Viscum orientale Willd.

Gwingyin. Parasitic upon *Acacia leucophlœa*.

Burm. *Kyibaung*.

DISTRIBUTION.—Bengal, Chittagong, Burma, Central and Peninsular India, Ceylon, Malay Peninsula and Archipelago, Australia, China.

602. Viscum articulatum Burm.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago.

LXXIX.—EUPHORBIACEÆ.

351. Euphorbia Linn.

603. Euphorbia cristata Heyne.

Sidoktaya.

DISTRIBUTION.—Bengal, Central and Peninsular India, Burma, Ceylon.

604. Euphorbia hypericifolia Linn.

Pyogingon.

DISTRIBUTION.—Throughout the tropics.

605. Euphorbia pilulifera Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

606. Euphorbia thymifolia Burm.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

607. * Euphorbia granulata Forsk.

Sidoktaya and Legain.

DISTRIBUTION.—Western Asia, Afghanistan, Western Frontier, Punjab, Upper Burma, N. Africa.

608. Euphorbia antiquorum Linn.

Common in the desert zone.

Burm. *Teinganeik-tayaung.*

DISTRIBUTION.—Throughout India, Burma, and Ceylon in the hotter parts.

352. Bridelia Willd.

609. Bridelia retusa Spreng.

Sidoktaya.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula.

610. Bridelia burmanica Hook. f.

Arracan Yomahs.

DISTRIBUTION.—Burma.

611. Bridelia stipularis Bl.

Minbu district.

DISTRIBUTION.—Eastern tropics.

353. Phyllanthus Linn.

612. Phyllanthus reticulatus Poir.

Minbu district.

DISTRIBUTION.—Eastern tropics.

613. Phyllanthus albizzioides Hook. f.

Sidoktaya.

DISTRIBUTION.—Burma

614. Phyllanthus columnaris Mu-ll.-Arg

Arracan Yomahs.

DISTRIBUTION —Burma

615. Phyllanthus simplex Retz.

Alluvial belt and irrigated areas

DISTRIBUTION —Eastern tropics

616. Phyllanthus disticlius Muell.-Arg.

Sinbok

DISTRIBUTION —Throughout India and Burma, Malay Archipelago, Madagascar.

354 Flueggia Willd.

617. Flueggia microcarpa Bl

Minbu district.

DISTRIBUTION —Eastern tropics

355. Putranjiva Wall

618. Putranjiva Roxburghii Wall

Arracan Yomahs

DISTRIBUTION —Throughout India Burma and Ceylon

356. Aporosa Bl.

619. Aporosa oblonga Muell.-Arg.

Arracan Yomahs

DISTRIBUTION.—Burma.

357. Antidesma Linn.

620. Antidesma diandrum Roth.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Ceylon.

358. Baccaurea Lour.

21. Baccaurea sapida Muell.-Arg.

Arracan Yomahs.

DISTRIBUTION —Eastern Himalaya, Bengal, Assam, Burma, Malay Peninsula and Archipelago, Andaman islands.

359. Jatropha Linn

622. Jatropha gossypifolia Linn.

Common throughout the district.

DISTRIBUTION.—Bengal, Assam, Burma, Malay Peninsula, Peninsular India. Indigenous to Brazil.

623. Jatropha Curcas Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

360. Croton Linn.

624. Croton oblongifolius Roxb.

Alluvial belt and irrigated areas.

Burm. *Thetyin-gyi.*

DISTRIBUTION.—Bengal, Central and Peninsular India, Assam, Burma, Ceylon.

361. Chrozophora Neck.

625. Chrozophora plicata A. Juss.

Common in the alluvial belt.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Western Asia, S. Europe, N. Africa.

362. Cœlodiscus Baill.

626. Cœlodiscus lappaceus Kurz.

Salin.

DISTRIBUTION.—Burma.

363. Mallotus Lour.

627. Mallotus philippinensis Muell.-Arg.

Minbu district.

DISTRIBUTION.—Throughout India, Ceylon, and Burma, China, Malay Peninsula and Archipelago, Australia.

364. Homonoia Lour.

628. Homonoia riparia Lour.

Nwamadaung hills.

DISTRIBUTION.—Eastern Himalaya, Bengal, Central and Peninsular India, Ceylon, Assam, Burma, Andaman islands.

365. Ricinus Linn.

629. Ricinus communis Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

366. Balliospermum Bl.

630. Balliospermum axillare Bl.

Nwamadaung hills.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal Central and Peninsular India, Assam, Chittagong, Burma, Malay Peninsula and Archipelago.

367. Sebastiana Spreng.

631. Sebastiana Chamælea Muell.-Arg.

Minbu district.

DISTRIBUTION.—Bengal, Central and Peninsular India, Ceylon, Burma, China, Malay Peninsula and Archipelago, Australia, Africa.

LXXX.—URTICACEÆ.

368. Holoptelea Planch.

632. Holoptelea integrifolia Planch.

Nwamadaung hills.

DISTRIBUTION.—N.-W. Himalaya, Upper Gangetic plain, Bengal, Central and Peninsular India, Ceylon, Burma, Cochin China.

369. Streblus Lour.

633. Streblus asper Lour.

Pyogingon.

Burm. *On-hnè-bin.*

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, Siam, China.

370. Ficus Linn.

634. Ficus bengalensis Linn.

Commonly planted in the alluvial belt.

DISTRIBUTION.—Throughout India and Burma.

635. Ficus Rumphii Bl.

Salin.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula and Archipelago.

636. Ficus religiosa Linn.

Commonly planted in the alluvial belt.

DISTRIBUTION.—Throughout India and Burma, Ceylon; planted mostly.

637. Ficus Cunia Ham.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Central India, Assam, Chittagong, Burma.

638. Ficus glomerata Roxb.

Arracan Yomahs.

Burm. *Thapan-thee.*

DISTRIBUTION.—Throughout India, Burma and Ceylon.

371. Artocarpus Forst.

639. Artocarpus integrifolia.

Commonly cultivated in the alluvial belt.

DISTRIBUTION.—Planted generally in Eastern Asia.

372. Boehmeria Jacq.

640. Boehmeria malabarica Wedd.

Sidoktaya.

DISTRIBUTION.—Sikkim, Assam, Chittagong, Burma, Peninsular India, Ceylon, Malay Archipelago.

373. Pouzolzia Gaud.

641. Pouzolzia indica Gaud. VAR. angustifolia.

Minbu district.

DISTRIBUTION.—Throughout India, Burma, and Ceylon, Malay Peninsula and Archipelago, China.

374. Sarcochlamys Gaud.

642. Sarcochlamys pulcherrima Gaud.

Nwamadaung hills.

DISTRIBUTION.—Bengal, Assam, Burma, Malay Archipelago.

LXXXI.—JUGLANDACEÆ.

375. Engelhardtia Leschen.

643. Engelhardtia Colebrookiana Lindl.

Arracan Yomahs

DISTRIBUTION.—Western and Central Himalayas, Assam, Burma, China.

LXXXII.—CUPULIFERÆ.

376. Quercus Linn.

644. Quercus Lindleyana Wall.
Arracan Yomahs.
DISTRIBUTION.—Burma.

645. * Quercus dealbata Hook. f. & Thoms.
Arracan Yomahs.
DISTRIBUTION.—Bhutan, Assam, Burma.

377. Castanopsis Spach.

646. Castanopsis tribuloides A. DC. VAR. ferox.
Arracan Yomahs.
DISTRIBUTION.—Eastern Himalaya, Assam, Chittagong, Burma.

LXXXIII.—CERATOPHYLLEÆ.

378. Ceratophyllum Linn.

647. Ceratophyllum demersum Linn.
Salin lake.
DISTRIBUTION.—Throughout temperate and tropical countries.

MONOCOTYLEDONES.

LXXXIV.—HYDROCHARIDACEÆ.

379. Hydrilla Richard.

648. Hydrilla verticillata Casp.
Paunglin lake.
DISTRIBUTION.—Central Europe and Eastern tropics.

380. Vallisneria Linn.

649. Vallisneria spiralis Linn.
Paunglin lake.
DISTRIBUTION.—Throughout the tropics.

381. Boottia Wall.

650. Boottia cordata Wall.
Paunglin lake.
DISTRIBUTION.—Burma.

LXXXV.—ORCHIDACEÆ.

382. Dendrobium Swartz.

651. Dendrobium ciliatum Parish.

Arracan Yomahs.

DISTRIBUTION.—Burma.

652. Dendrobium chrysotoxum Lindl.

Arracan Yomahs.

DISTRIBUTION.—Burma.

383. Pholidota Lindl.

653. * Pholidota articulata Lindl.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma.

384. Calanthe Br.

654. * Calanthe puberula Lindl.

Minbu district.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma.

385. Zeuxine Lindl.

655. Zeuxine sulcata Lindl.

Minbu district.

DISTRIBUTION.—Eastern tropics.

386. Habenaria Willd.

656. Habenaria yomensis n. sp.

Plant about 30 cm. high, leaves three, radical, subsessile, membranous, glabrous, broadly ovate, acute, about 9·5 cm. long and about 6·8 cm. broad. Scape slender, with somewhat distant, adpressed, narrowly lanceolate bracts about 1·5 cm. long. Raceme about 11 cm. long, 10-12-flowered. Ovary about 1·8 cm. long, twice as long as its bract, dorsal sepal cucullate, 5-nerved, acute, 6 mm. long, lateral sepals lanceolate, acute, 3-nerved, 7 mm. long and 3 mm. broad. Petals linear, longer than the lateral sepals, 1-nerved. Lip trifid, central segment linear, 1·2 cm. long, lateral segments falcate, 4-nerved, broader and about twice as long as the central segment. Spur curved, twice as long as the ovary. Tubes of anther cells short.

Sidoktaya, Arracan Yomahs, *Shaik Mokim !*

This species appears to come nearest *Habenaria diphylla* Dalz., of the section *Trimeroglossa*. It is readily distinguished from the latter, however, by its much larger size and looser inflorescence and by the spur being much larger than the ovary.

657. Habenaria constricta Hook. f.

Arracan Yomahs.

DISTRIBUTION.—Eastern Himalaya, Assam, Burma.

LXXXVI.—SCITAMINEÆ.

387. Curcuma Linn.

658. Curcuma sessilis n. sp.

Root-stock large, tubers vertical, ovoid, brown externally, white internally, 5-7·5 cm. long, and about 2·5 cm. thick, rootlets white, as thick as a goose-quill. Leafy tuft few-leaved, less than 60 cm. high, basal leaf-sheaths purple, petiole and sheath together about 15-17·5 cm. long, lamina green, narrowly lanceolate, 17·5-20 cm. long, 2·8-3·8 cm. broad, pubescent on both surfaces. Spike æstival, appearing in June, developed just before the leaves, subsessile, about 11·8 cm. long, lower bracts green, those of the coma purple. Flowers smaller than the bracts, calyx very short, obscurely toothed, corolla tube about 2·5 cm. long, white, segments sub-equal, ovate, acute, with margins incurved towards the apex, posterior segment tipped with red. Lateral staminodes oblong, apex incurved, faintly yellow, lip 1·2 cm. broad, oblong, lateral lobes large, faintly yellow, central lobe projecting, retuse or bifid, bright yellow.

Minbu district, *Shaik Mokim* !

The writer would incline to place this species near *Curcuma cæsia* or *C. æruginosa*, from either of which it is distinguished by its much smaller size and practically sessile spike.

659. Curcuma plicata Wall.

Nwamadaung hills.

DISTRIBUTION.—Burma.

This plant in the living state is very like the drawings of *Curcuma plicata* in the Calcutta Herbarium, but differs from Wallich's specimens in having glabrous instead of pubescent bracts.

660. Curcuma parvula n. sp.

Rootstock small, ovoid, with a few thick white downward directed branches ending in small oval tubers about 2 cm. long and 1·2 cm. thick. Plant dwarf, not much over 20 cm. high. Leaves 5-8 in a

tuft, leaf-sheaths 2·5-4·5 cm. long, equitant, petiole 1·2-1·8 cm. long, lamina narrowly lanceolate, acuminate, tapering gradually into the petiole, glabrous on both surfaces, dark green above, lighter below, 6·5-16·5 cm. long, 1·2-1·8 cm. broad. Spike appearing between the leaves, very shortly peduncled, few flowered, bracts green, about 1·8 cm long, those of the coma tinged with pink. Flower 2·8 cm. long, corolla-tube 1·8 cm. long. Calyx white, pubescent, reaching half way up the corolla tube, with 3 small rounded teeth. Lateral corolla segments sub-equal, white translucent, broadly ovate, posterior segment larger and hooded. Lateral staminodes oblong yellow, lip yellow, broadly oblong, obscurely three-lobed, lateral lobes feebly developed, central lobe projecting, retuse, anther oblong with inferior incurved horns, stigma spatulate. Flowered in Royal Botanical Garden, Calcutta, in July 1903.

Minbu district, *Shaik Mokim!*

This species would appear to come after *C. plicata*.

388. Zingiber Adans.

661. Zingiber Casumunar Roxb.

Arracan Yomahs.

DISTRIBUTION.—Tropical Asia.

389. Phrynium Willd.

662. * Phrynium parviflorum Roxb.

Arracan Yomahs.

DISTRIBUTION.—Eastern Himalaya, Assam, Burma, Andaman islands, Peninsular India, Malay Peninsula and Archipelago.

LXXXVII.—HÆMODORACEÆ.

390. Sansevieria Thunb.

663. Sansevieria Roxburghiana Schult. f.

Pyogingon.

DISTRIBUTIO —Peninsular India, Ceylon, Burma.

LXXXVIII.—DIOSCOREACEÆ.

391. Dioscorea Linn.

664. Dioscorea dæmona Roxb.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Malay Peninsula and Archipelago, China.

665. Dioscorea pentaphylla Linn.
Nwamadaung hills.
DISTRIBUTION.—Eastern tropics.

666. Dioscorea decipiens Hook. f.
Sidoktaya.
DISTRIBUTION.—Burma.

667. Dioscorea glabra Roxb.
Minbu district.
DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Peninsular India, Burma.

668. Dioscorea sativa Linn.
Minbu district.
DISTRIBUTION.

669. Dioscorea alata Linn.
Arracan Yomahs and Nwamadaung hills
DISTRIBUTION.—Tropical India and Burma.

670. Dioscorea bulbifera Linn.
Minbu district.
DISTRIBUTION.

LXXXIX.—ROXBURGHIACEÆ.

392. Stemona Lour.

671. Stemona Griffithiana Kurz.
DISTRIBUTION.—Burma.

XC.—LILIACEÆ.

393. Chlorophytum Ker.

672. * Chlorophytum orchidastrum Lindl.
Sidoktaya.
DISTRIBUTION.—Peninsular India, Burma, China, tropical Africa.

673. * Chlorophytum laxum Br.
Minbu district.
DISTRIBUTION.—Peninsular India, Ceylon, Burma, China, Malay Archipelago, Australia, tropical Africa.

394. Gloriosa Linn.

674. Gloriosa superba Linn.
Common in the desert zone.
DISTRIBUTION.—Eastern tropics.

XCI.—PONTEDERIACEÆ.

395. Monochoria Presl.

675. Monochoria hastæfolia Presl.

Salin lake.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago, China.

XCII.—COMMELINACEÆ.

396. Commelina Linn.

676. * Commelina salicifolia Roxb.

Mon valley near Sidoktaya.

DISTRIBUTION.—Bengal, Peninsular India, Assam, Burma, Malay Archipelago, Hong Kong.

397. Cyanotis Don.

677. * Cyanotis papilionacea Schultes f.

Sidoktaya.

DISTRIBUTION.—Peninsular India, Burma.

678. Cyanotis cristata Schultes f.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, tropical Africa.

XCIII.—PALMACEÆ

398. Phœnix Linn.

679. Phœnix humilis Royle. VAR. Loureiri *Becc.*

Gwingyin.

DISTRIBUTION, of the variety.—Assam, Burma, Cochin-China.

399. Corypha Linn.

680. Corypha (? umbraculifera Linn.)

A young tree planted near a pagoda at Pyogingon.

DISTRIBUTION.—Peninsular India and Ceylon.

400. Borassus Linn.

681. Borassus flabellifer Linn.

Common in the alluvial belt.

DISTRIBUTION.—Cultivated throughout India, Burma and Ceylon, Malay Peninsula and Archipelago, tropical Africa.

401. Cocos Linn.

682. **Cocos nucifera** Linn.

Common in the alluvial belt.

DISTRIBUTION.—Throughout the tropics, cultivated.

XCIV.—PANDANACEÆ.

402. Pandanus Linn. f.

683. **Pandanus fascicularis** Lamk.

Salin.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago, Polynesia, Mauritius, China.

XCV.—TYPHACEÆ.

403. Typha Linn.

684. **Typha elephantina** Roxb.

Salin lake.

DISTRIBUTION.—Throughout India and Burma, N. Africa.

XCVI.—ARACEÆ.

404. Pistia Linn.

685. **Pistia Stratiotes** Linn.

Paunglin and Salin lakes.

DISTRIBUTION.—Throughout the tropics.

405. Typhonium Schott.

686. **Typhonium trilobatum** Schott.

Mon valley.

DISTRIBUTION.—Bengal, Peninsular India, Ceylon, Burma, Malay Peninsula and Archipelago, Siam.

687. **Typhonium pedatisectum** n. sp.

Plant about 42 cm. high or less. Petiole 21-32·5 cm. long, bright green, lamina bright green, palmate in outline, pedatisect almost to the petiole into 7-11 linear segments, the central one 11-18 cm. long and about 1-2 cm. broad, the lateral successively shorter and narrower to the most posterior segment about 3·8 cm. long and ·5 cm. broad, segments at first spreading straight, at length curving backwards. Peduncle 6 cm. long or shorter or spathe sessile. Spathe 18-20 cm. long, and 4-5 cm. broad, limb broadly ovate open, narrowed into a long at length twisted point, bright green externally,

tinged with purple at the base, at first dark olive-green internally, a length a veined or uniform purple. Spadix reaching to about the base of the twisted point, neuters numerous about as many as the female flowers, about 6 mm. long, faintly yellow, subulate recurved sparsely setulosely hairy, spadix between the neuter and male flowers pink or red and 1 5-2 cm. long, male portion of spadix a little shorter. Appendix shortly stalked, slender, dark purple almost black, base lobulated, about 10·6 cm. long.

Minbu district, *Shaik Mokim*!

A singular looking plant apparently resembling *T. pedatum* in foliage, but differing in spathe and spadix, according to the description of *T. pedatum* which is all the writer has to guide him, there being no specimen of *T. pedatum* in the Calcutta Herbarium.

406. **Alocasia** Schott.

688. **Alocasia decipiens** Schott.

Arracan Yomahs.

DISTRIBUTION.—Burma.

XCVII.—LEMNACEÆ.

407. **Lemna** Linn.

689. **Lemna polyrhiza** Linn.

Salin lake.

DISTRIBUTION.—Temperate zones and tropics.

408. **Wolffia** Horkel.

690. **Wolffia arrhiza** Wimm.

Salin lake.

DISTRIBUTION.—Cosmopolitan.

XCVIII.—ALISMACEÆ.

409.* **Limnophyton** Miq.

691. * **Limnophyton obtusifolium** Miq.

Salin lake.

DISTRIBUTION.—Peninsular India, Ceylon, Burma, tropical Africa.

XCIX.—NAIADACEÆ.

410. **Potamogeton** Linn.

692. **Potamogeton indicus** Roxb.

Paunglin lake.

DISTRIBUTION.—Throughout India, Ceylon and Burma, Malay Archipelago.

693. Potamogeton crispus Linn.

Irawaddy river.

DISTRIBUTION.—Throughout the temperate and sub-tropical zones.

C.—CYPERACEÆ.

411. Pycreus Beauv.

694. Pycreus nitens Nees.

Minbu district.

DISTRIBUTION.—Eastern tropics.

412. Juncellus Kunth.

695. Juncellus alopecuroides C. B. Clarke.

Salin lake margin.

DISTRIBUTION.—Eastern tropics.

696. Juncellus pygmaeus C. B. Clarke.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

413. Cyperus Linn.

697. Cyperus platystylis R. Br.

Salin lake.

DISTRIBUTION.—Bengal, Peninsular India, Ceylon, Burma, Malay Peninsula and Archipelago, Australia.

698. Cyperus difformis Linn.

Sidoktaya.

DISTRIBUTION.—Eastern tropics.

699. Cyperus Iria Linn.

Minbu district.

DISTRIBUTION.—Eastern tropics.

700. Cyperus articulatus Linn.

Mon valley.

DISTRIBUTION.—Throughout the tropics.

701. Cyperus corymbosus Rottb.

Legain.

DISTRIBUTION.—Tropics generally.

702. Cyperus rotundus Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

703. Cyperus radiatus Vahl.

Salin lake.

DISTRIBUTION.—Throughout the tropics.

704. Cyperus digitatus Roxb.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

414. Mariscus Vahl.

705. Mariscus microcephalus Presl.

Minbu district.

DISTRIBUTION.—Throughout India, Burma and Ceylon, China, Malay Peninsula and Archipelago, Mauritius.

415. Eleocharis R. Br.

706. Eleocharis capitata Br.

Salin lake.

DISTRIBUTION.—Tropics generally.

416. Fimbristylis Vahl.

707. Fimbristylis dipsacea Benth.

Irawaddy bank.

DISTRIBUTION.—Eastern tropics.

708. Fimbristylis dichotoma Vahl.

Mon valley.

DISTRIBUTION.—Eastern tropics.

709. Fimbristytis quinqueangularis Kunth.

Mon valley near Sidoktaya.

DISTRIBUTION.—Throughout India, Burma, Ceylon, China, Malay Peninsula and Archipelago, Australia, Mauritius.

710. Fimbristylis miliacea Vahl.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

417. Bulbostylis Kunth.

711. Bulbostylis barbata Kunth.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

418. Scirpus Linn.

712. Scirpus articulatus Linn.

Paunglin lake shore.

DISTRIBUTION.—Eastern tropics.

713. Scirpus Michelianus Linn.

Irawaddy bank.

DISTRIBUTION.—Eastern tropics and warm temperate zone.

419. Carex Linn

714. *Carex baccans Nees.

Arracan Yomahs.

DISTRIBUTION.—Eastern Himalaya, Assam, Burma, Peninsular India, Ceylon, Malay Archipelago, China, Philippine islands.

CI.—GRAMINEÆ.

420. Paspalum Linn.

715. Paspalum sanguinale Lamk. VAR. extensa.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

716. Paspalum longiflorum Retz.

Minbu district.

DISTRIBUTION.—Eastern tropics and subtropics.

717. Paspalum pedicellare Trin.

Sagu.

DISTRIBUTION.—Throughout Upper India and Burma, Nilgiris.

421. Panicum Linn.

718. Panicum flavidum Retz.

Minbu district.

DISTRIBUTION.—Eastern tropics.

719. Panicum Crus-galli Linn.

Salin.

DISTRIBUTION.—Thoughout the tropics.

720. Panicum colonum Linn.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

721. Panicum prostratum Lamk.

Irawaddy bank.

DISTRIBUTION.—Throughout the tropics.

722. * **Panicum setigerum** Retz.

Arracan Yomahs.

DISTRIBUTION.—Bengal, Peninsular India, Ceylon, Burma.

723. **Panicum miliaceum** Linn.

Irawaddy bank, cultivated.

Burm. *Lu.*

DISTRIBUTION.—Throughout the tropics, naturalised or cultivated.

724. **Panicum miliare** Lamk.

Sagu.

DISTRIBUTION.—Throughout the tropics, cultivated.

725. **Panicum repens** Linn.

Salin lake.

DISTRIBUTION.—Tropics and subtropics.

726. **Panicum proliferum** Lamk.

Alluvial belt, cultivated.

DISTRIBUTION.—Generally throughout the tropics.

727. **Panicum sarmentosum** Roxb.

Arracan Yomahs.

DISTRIBUTION.—Bengal, Assam, Chittagong, Burma, Malay Peninsula and Archipelago, China.

422. Thysanolæna Nees.

728. **Thysanolæna Agrostis** Nees.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Central India, Assam, Burma, Nicobar islands, Malay Peninsula and Archipelago.

423. Axonopus Beauv.

729. **Axonopus cimicinus** Beauv.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Peninsula and Archipelago, China.

424. Arundinella Raddi.

730. * **Arundinella setosa** Trin.

Minbu district.

DISTRIBUTION.—N.-W. and Central Himalayas, Bengal, Assam, Burma, Central and Peninsular India, Ceylon, China, Philippine islands.

425. Setaria Beauv.

731. Setaria italica Beauv.

Gwingyin, cultivated.

Burm. *Sat.*

DISTRIBUTION.—Throughout temperate and tropical countries.

732. Setaria verticillata Beauv.

Paunglin.

DISTRIBUTION.—Throughout the tropics and in the temperate zone.

426. Pennisetum Pers.

733. Pennisetum typhoideum Rich.

Minbu district.

DISTRIBUTION.—Throughout India and Burma, Africa and Southern Europe.

427. Oryza Linn.

734. Oryza sativa Linn.

Minbu district, cultivated.

DISTRIBUTION.—Cultivated throughout the tropics.

428. Tragus Hooker.

735. Tragus racemosus Scop.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

429. Perotis Ait.

736. Perotis latifolia Ait.

Minbu district.

DISTRIBUTION.—Eastern tropics.

430. Polytoca Br.

737. Polytoca bracteata Br.

Paunglin.

DISTRIBUTION.—Sikkim, Assam, Burma, Tonkin.

738. Polytoca Wallichiana Benth.

Sidoktaya.

DISTRIBUTION.—Burma.

431. Zea Linn.

739. Zea Mays Linn.

Alluvial belt, cultivated.

DISTRIBUTION.—Cultivated generally in the tropics.

432. Imperata Cyrill.

740. Imperata arundinacea Cyrill.

Alluvial belt, the common savannah grass.

DISTRIBUTION.—Throughout the tropics.

741. Imperata exaltata Brongn.

Irawaddy bank.

DISTRIBUTION.—Burma, Malay Peninsula and Archipelago, tropical America.

433. Pollinia Trin.

742. Pollinia quadrinervis Hack.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma, China.

743. Pollinia eucnemis Nees.

Arracan Yomahs.

DISTRIBUTION.—Burma, Malay Archipelago.

744. * Pollinia grata Hack.

Arracan Yomahs.

DISTRIBUTION.—Sikkim, Assam, Burma, China, Malay Archipelago.

434. Saccharum Linn.

745. Saccharum spontaneum Linn.

Arracan Yomahs.

DISTRIBUTION.—Southern Europe, Eastern tropics and Australia.

746. Saccharum fuscum Roxb.

Sinbok.

DISTRIBUTION.—Upper Gangetic plain, Bengal, Peninsular India, Assam, Burma.

435. Erianthus Michx.

747.* Erianthus longisetosus Anderss.

Arracan Yomahs.

DISTRIBUTION.—Central and Eastern Himalayas, Assam, Chittagong, Burma.

748. Erianthus Hookeri Hack.

Arracan Yomahs.

DISTRIBUTION.—Sikkim, Burma, Yunnan.

436. Ischæmum Linn.

749. Ischæmum rugosum Salisb.

Sagu.

DISTRIBUTION.—Throughout India, and Ceylon, Burma, Malay Peninsula and Archipelago, Andaman islands, China.

750 Ischæmum laxum Br.

Sidoktaya.

DISTRIBUTION.—Eastern tropics.

437. Eremochloa Buse.

751.* Eremochloa muricata Hack.

Legain.

DISTRIBUTION.—Peninsular India, Ceylon, Burma, Australia.

438. Pogonatherum Beauv

752. Pogonatherum crinitum Trin.

Nwamadaung hills.

DISTRIBUTION.—Afghanistan, India and Burma, China, Malay Peninsula and Archipelago, Polynesia.

439. Arthraxon Beauv.

753. Arthraxon ciliaris Beauv.

Arracan Yomahs.

DISTRIBUTION.—Throughout the hilly region of India, Burma and Ceylon.

440. Rottbœllia Linn. f.

754. Rottbœllia exaltata Linn. f.

Minbu district.

DISTRIBUTION.—Eastern tropics.

441. Manisuris Sw.

755. Manisuris granularis Linn. f.

Sidokktaya.

DISTRIBUTION.—Generally throughout the tropics.

442. Andropogon Linn.

756. Andropogon brevifolius Sw.

Arracan Yomahs.

DISTRIBUTION.—Generally throughout the tropics.

757.* Andropogon foveolatus Del.

Minbu district.

DISTRIBUTION.—Upper Gangetic plain, Bengal, Central and Peninsular India, Burma, Western Asia.

758. Andropogon fasciculatus Roxb.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Bengal, Central India, Assam, Burma, Tonkin.

759. Andropogon assimilis Steud.

Arracan Yomahs.

DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Rajputana, Bengal, Central and Peninsular India, Assam, Burma, Malay Archipelago, China, Japan.

760. Andropogon halepensis Brot.

Gwingyin.

DISTRIBUTION.—Throughout the tropics.

761. Andropogon Sorghum Brot.

Salin and Gwingyin.

DISTRIBUTION.—Cultivated throughout the tropics.

762. Andropogon serratus Thunb.

Minbu district.

DISTRIBUTION.—Tropics of Asia and Australia.

763. Andropogon squarrosus Linn. f.

Irawaddy bank.

DISTRIBUTION.—Throughout India, Ceylon, Burma, Malay Archipelago, Tropical Africa.

764. Andropogon caricosus Linn.

Sagu.

DISTRIBUTION.—Scinde, Central and Peninsular India, Bengal, Burma, Andaman islands, Ceylon, China, Mauritius.

765. Andropogon annulatus Forsk.

Irawaddy bank.

DISTRIBUTION.—Throughout India and Burma, China, tropical Africa and Australia.

766. Andropogon contortus Linn.

Minbu district.

DISTRIBUTION.—Throughout the tropics.

767. Andropogon Schœnanthus Linn.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Western Asia, tropical Africa.

VAR. **clandestina.**

Minbu district.

DISTRIBUTION.—Burma.

443. Anthistiria Linn.

768. Anthistiria imberbis Retz.

Sagu and Sidoktaya.

DISTRIBUTION.—Eastern tropics.

444. Iseilema Hack.

769. * Iseilema laxum Hack.

Legain.

DISTRIBUTION.—Bengal, Peninsular India, Burma.

445. Aristida Linn.

770. Aristida Adscensionis Linn.

Gwingyin.

DISTRIBUTION.—Throughout the tropics.

771. * Aristida funiculata Trin. & Rupr.

Minbu district.

DISTRIBUTION.—Burma, Bengal, Peninsular and Western India, Western Asia to tropical Africa.

446. Sporobolus Br.

772. Sporobolus tremulus Kunth.

Paunglin lake.

DISTRIBUTION.—Throughout India and Burma, Tonkin.

773. Sporobolus coromandelianus Kunth.

Minbu district.

DISTRIBUTION.—Throughout India, Burma and Ceylon, Afghanistan, tropical Africa.

447. Cynodon Pers.

774. Cynodon dactylon Pers.
Irawaddy bank.
DISTRIBUTION.—Throughout the tropics.

448. Chloris Sw.

775. Chloris barbata Sw.
Minbu district.
DISTRIBUTION.—Throughout the tropics.

449. Eleusine Gærtn.

776. Eleusine indica Gærtn.
Mon valley.
DISTRIBUTION.—Eastern tropics, introduced into the Western tropics.

777. Eleusine ægyptiaca Desf.
Gwingyin.
Burm. *Legwa.*
DISTRIBUTION.—As the last species.

450. Leptochloa Beauv.

778. Leptochloa chinensis Nees.
Paunglin lake shore.
DISTRIBUTION.—Throughout India, Burma, and Ceylon, China, Japan, Malaya, Australia.

451. Arundo Linn.

779. Arundo Donax Linn.
Irawaddy bank.
DISTRIBUTION.—Throughout India and Burma, Western Asia and Northern Asia to Africa and Europe.

452. Phragmites Trin.

780. Phragmites Karka Trin.
Irawaddy bank.
DISTRIBUTION.—Throughout the Eastern tropics.

453. Neyraudia Hook. f.

781. Neyraudia madagascariensis Hook. f.
Arracan Yomahs.
DISTRIBUTION.—N.-W., Central and Eastern Himalayas, Assam, Burma, Malay Peninsula and Archipelago, tropical Africa.

454. Eragrostis Beauv.

782. Eragrostis tenella Roem. & Schult.

VAR. **plumosa.**

Gwingyin.

DISTRIBUTION.—Throughout India, Burma and Ceylon.

* VAR. **riparia.**

Minbu district.

DISTRIBUTION.—Orissa, Peninsular India, Laccadives, Burma.

783. Eragrostis interrupta Beauv. VAR. **Kœnigii.**

Irawaddy bank.

DISTRIBUTION.—Eastern tropics.

784. Eragrostis major Host.

Irawaddy bank.

DISTRIBUTION.—Throughout India, Burma and Ceylon, tropical Asia, and Southern Europe.

785. Eragrostis cynosuroides Beauv.

Alluvial belt.

DISTRIBUTION.—Throughout India and Burma, and Western Asia to N. Africa.

455. Triticum Linn.

786. Triticum vulgare Vill.

Alluvial belt, sparing cultivated.

DISTRIBUTION.—Generally in warm and temperate regions.

456. Dendrocalamus Nees.

787. Dendrocalamus strictus Nees.

Nwamadaung hills.

DISTRIBUTION.—Throughout India and Burma, Malay Archipelago.

CRYPTOGAMIA.

CII.—FILICES.

457. Pteris Linn.

788. Pteris longifolia Linn.

Arracan Yomahs.

DISTRIBUTION.—Throughout the tropics and warm temperate regions.

789. Pteris cretica Linn.

Arracan Yomahs.

DISTRIBUTION.—Southern Europe, Africa, Western Asia, Himalayas, Peninsular India, Burma, Philippine islands, Polynesia, tropical America.

458. Polypodium Linn.

790. Polypodium multilineatum Wall.

Arracan Yomahs.

DISTRIBUTION.—Northern India and Burma.

459. Lygodium Sw.

791. Lygodium flexuosum Sw.

Mon valley.

DISTRIBUTION.—Chittagong, Burma, Malay Peninsula and Archipelago, Andaman islands, Ceylon, Philippine islands, China.

792. Lygodium microphyllum R. Br.

Nwamadaung hills.

DISTRIBUTION.—Sikkim, Bengal, Peninsular India, Assam, Burma, Malay Peninsula and Archipelago, Andaman islands, Ceylon, China, Africa.

CIII.—SELAGINELLACEÆ.

460. Selaginella Spring.

793. Selaginella proniflora Baker.

Arracan Yomahs.

DISTRIBUTION.—Throughout India and Burma, Ceylon, Malay Archipelago, N. Australia.

CIV.—RHIZOCARPEÆ.

461. Azolla Lam.

794. Azolla pinnata R. Br.

Paunglin lake.

DISTRIBUTION.—Tropical Asia, Africa and Australia.

462. Marsilea Linn.

795. Marsilea quadrifoliata Linn.

Paunglin lake.

DISTRIBUTION.—From Central Europe to Japan.

DISTRIBUTIONAL CONSPECTUS.

I.—ARRACAN-NWAMADAUNG PLANTS.

(1) Endemic to the **Assam-Arracan sub-sub-area.**

Vitis Aubertiana, Indigofera minbuensis, Millettia cana, Desmodium grande, D. teres, Derris pulchra, Vernonia sp. Diospyros sp. Lettsomia campanuliflora, Ipomœa Edithæ, Justicia khasiana, Habenaria yomensis, Curcuma sessilis, C. parvula, Typhonium pedatisectum.

(2) Distributed to **Pegu** and **Ava.**

Bombax (?) insignis, Atylosia nivea, Flemingia fluminalis, Lagerstrœmia macrocarpa, Knoxia plantaginea, Argyreia Burneyi, Lettsomia pallida, Neuracanthus tetragonostachyus, Lepidagathis dulcis, Tectona Hamiltoniana, Vitex canescens, Bridelia burmanica, Phyllanthus albizzioides, Dioscorea dicipiens, Alocasia decipiens, Curcuma plicata.

(3) Distributed to the **Shan Hills.**

Desmodium oblongum, D. Kingianum, Terminalia Oliveri, Combretum pyrifolium, Ipomœa gracillima, Plectranthus hispidus, Anisochilus carnosus VAR. purpurascens, Quercus Lindleyana.

(4) Distributed to **Martaban** and **Tenasserim.**

Leea compactiflora, Momordica macrophylla, Diplospora confusa, Dendrobium ciliatum, D. chrysotoxum.

(5) Distributed to **Pegu, Ava,** and the **Shan Hills.**

Hiptage candicans, Millettia tetraptera, Desmodium Wallichii, Dalbergia obtusifolia, D. Kurzii, Cassia renigera, Lagerstrœmia villosa, Blinkworthia lycioides, Dolichandrone stipulata, Dædalacanthus macrophyllus, Cystacanthus insignis, Hymenopyramis brachiata, Anisomeles candicans, Colquhounia elegans.

(6) Distributed to **Pegu** and **Tenasserim.**

Semecarpus albescens, Pueraria stricta, Terminalia pyrifolia, Gardenia obtusifolia, Strobilanthes phyllostachyus, Gomphostemma strobilinum, Phyllanthus columnaris, Aporosa oblonga, Stemona Griffithiana.

(7) Distributed to the **Shan Hills** and to **Tenasserim.**

Lophopetalum Wallichii, Melanorrhœa usitata, Crotalaria neriifolia, Pueraria Candollei, Pterocarpus macrocarpus, Bauhinia polycarpa, Anogeissus acuminata VAR. lanceolata, Lagerstrœmia tomentosa, Gardenia erythroclada, Heterophragma sulfureum, H. adenophyllum, Dædalacanthus tetragonus, Hemigraphis glaucescens, Justicia decussata, Orthosiphon Parishii.

(8) Species distributed to the **Malay Peninsula** or **Archipelago** or **Siam.**

(*a*) To **Peninsula** or **Archipelago.**

Taraktogenos Kurzii, Hibiscus sagittifolius, Micromelum hirsutum, Albizzia lebbekoides, Combretum chinense, Tupidanthus calyptratus, Morinda persicæfolia, Vaccinium bancanum, Thunbergia laurifolia, Nomaphila Parishii, Eranthemum album, Pollinia eucnemis.

(*b*) To **Siam.**

Dipterocarpus tuberculatus, Shorea siamensis, Walsura villosa, Millettia pendula, M. ovalifolia, M. Brandisiana, Dalbergia cultrata, Alsomitra sarcophylla, Congea tomentosa, Vitex limonifolia.

(9) Species distributed to the **Himalayas.**

Clematis grewiæflora, Hibiscus pungens, Vitis assamica, Crotalaria tetragona, Millettia cinerea, Pueraria Wallichii, Albizzia lucida, Pygeum acuminatum, Thladiantha calcarata, Rubia angustissima, Raphistemma pulchellum, Tylophora tenerrima, Ipomœa petaloidea VAR. linearifolia, Vitex peduncularis, Cinnamomum obtusifolium, Quercus dealbata, Castanopsis tribuloides VAR. ferox, Pholidota articulata, Calanthe puberula, Habenaria constricta, Erianthus longisetosus.

(10) **China-Himalayan** species.

Helicteres elongata, Sapindus Mukorossi, Rhus paniculata, Gymnema tingens, Engelhardtia Colebrookiana, Polytoca bracteata, Pollinia quadrinervis, Erianthus Hookeri.

(11) **Himalayan-Malayan** species.

Eriobotrya bengalensis, Duabanga sonneratioides, Hodgsonia heteroclita, Blumea balsamifera, Wedelia Wallichii.

(12) Species common to the **Himalayas, China** and **Malaya.**

Inula Cappa, Buchnera cruciata, Loranthus pentapetalus, Pollinia grata.

(13) Species distributed to **Central** and **Peninsular India,** the **Deccan** sub-sub-area.

Crotalaria nana, Indigofera Wightii, Desmodium Cephalotes VAR. congesta, Rhynchosia suaveolens, Dalbergia paniculata, Bauhinia diphylla, Acacia canescens, Pimpinella Leschenaultii, Ipomœa pulchella.

(14) **Species distributed to the Deccan, Indus plain, and Western dry half of Gangetic plain.**

Naravelia zeylanica, Sterculia colorata, Balanites Roxburghii, Buchanania latifolia, Butea superba, Cylista scariosa, Flemingia nana, Goniocaulon glabrum, Schrebera swietenioides, Aniseia calycina, Dædalacanthus purpurascens, Strobilanthes scaber, Symphorema involucratum, Aerua Monsonia, Panicum setigerum.

(15) **Deccan and Malayan species.**

Sida mysorensis, Chickrassia tabularis, Cæsalpinia Sappan, C. digyna, Xylia dolabriformis, Calycopteris floribunda, Combretum extensum, Oldenlandia alata, Ligustrum robustum, Tylophora asthmatica, Ipomœa campanulata, Dolichandrone Rheedii, Tectona grandis, Typhonium trilobatum.

(16) Distributed throughout **India** and **Malaya.**

Hibiscus radiatus, Garuga pinnata, Melia Azadirachta, Olax scandens, Ventilago calyculata, Crotalaria sessiliflora, Uraria hamosa, Desmodium pulchellum, D. gyrans, Albizzia procera, Trichosanthes cucumerina, Hymenodictyon excelsum, Oldenlandia nudicaulis, Blumea membranacea, Laggera flava, Holarrhena antidysenterica, Wrightia tomentosa, Fagræa obovata, Ipomœa vitifolia, Barleria strigosa, Clerodendron infortunatum, Gmelina arborea, Polygonum chinense VAR. ovalifolia, Aristolochia Tagala, Loranthus Scurrula Viscum articulatum, Baccaurea sapida, Baliospermum axillare, Bœhmeria malabarica, Sarcochlamys pulcherrima, Phrynium parviflorum, Carex baccans, Thysanolæna Agrostis, Arthraxon ciliaris, Dendrocalamus strictus.

(17) Distributed to **India.**

Olax nana, Odina Wodier, Indigofera pulchella, Millettia auriculata, Alysicarpus vaginalis, Erythrina suberosa, Spatholobus Roxburghii, Rhynchosia bracteata, Terminalia tomentosa, Lagerstrœmia parviflora, Mitragyna parviflora, Vernonia teres, Cyathocline lyrata, Vicoa auriculata, Cryptolepis Buchanani, Holostemma Rheedii, Marsdenia tenacissima, Lettsomia setosa, Stereospermum chelonoides, Orthosiphon rubicundus, Leucas nutans, Cinnamomum Tamala, Putranjiva Roxburghii, Antidesma diandrum, Homonoia riparia, Ficus Cunia, Ficus glomerata, F. religiosa, F. bengalensis, Dioscorea glabra, D. alata.

(18) **Distributed over S.-E. Asia.**

Impatiens Balsamina, Spondias mangifera, Crotalaria albida, Mucuna pruriens, Vitis discolor, Canavalia ensiformis, Bauhinia purpurea, B. variegata, Entada scandens, Kalanchoë spathulata,

Gymnopetalum cochin-chinense, Randia dumetorum, Blumea glomerata, B. laciniata, Ardisia humilis, Canscora diffusa, Pharbitis Nil, Torenia cordifolia, Æginetia indica, Oroxylum indicum, Barleria cristata, Lepidagathis hyalina, Justicia simplex, Adhatoda vasica, Leucas involucrata, Holoptelea integrifolia, Zingiber Casumunar, Dioscorea dæmona, Panicum sarmentosum, Arundinella setosa, Pogonatherum crinitum, Andropogon fascicularis, Andropogon assimilis.

(19) Distributed from **Africa** to **Malaya.**

Abutilon polyandrum, A. graveolens, Triumfetta annua, Alysicarpus bupleurifolius, Atylosia scarabœoides, Acacia pennata, Kalanchoë laciniata, Cephalandra indica, Mukia scabrella, Emilia sonchifolia, Mæsa indica, Ipomœa Pes-tigridis, I. Turpethum, Jacquemontia paniculata, Dioscorea pentaphylla, Chlorophytum laxum, Andropogon brevifolius, Neyraudia madagascariensis.

(20) Distributed from **Africa** to **India.**

Laggera pterodonta, Alectra indica, Chlorophytum orchidastrum.

(21) Distributed from **India** to **Australia.**

Cedrela Toona, Crotalaria linifolia, C. medicaginea, Derris scandens, Trichosanthes palmata, Zehneria umbellata, Sarcocephalus cordatus, Pavetta indica, Diospyros montana, Ichnocarpus frutescens, Saccharum spontaneum.

(22) Distributed **throughout the tropics.**

Sida acuta, S. rhombifolia, Urena lobata, U. sinuata, Melochia corchorifolia, Elephantopus scaber, Solanum verbascifolium, Nelsonia campestris.

II.—ALLUVIAL BELT.

(1) Distributed to **Pegu** and **Ava.**

Sterculia versicolor, Uraria cordifolia, Leucas pilosa, Boottia cordata.

(2) Distributed to **Pegu, Ava** and the **Shan Hills.**

Lourea campanulata, Sphæranthus peguensis.

(3) Distributed to **Pegu** and **Tenasserim.**

Millingtonia hortensis, Dicliptera riparia, Polytoca Wallichiana.

(4) Distributed to **Malaya.**

Xanthophyllum glaucum, Terminalia Catappa, Combretum trifoliatum, Azima sarmentosa, Myriopteron paniculatum, Imperata exaltata.

(5) Distributed to **China.**

Liadenbergia philippensis, Desmodium diffusum, Celsia coromandeliana.

(6) Distributed to the **Himalayas.**
Argyreia Hookeri.

(7) Distributed to **China** and the **Himalayas.**
Helicteres elongata.

(8) Distributed to **Malaya** and the **Himalaya.**
Miliusa Roxburghiana.

(9) Distributed to **China** and **Malaya.**
Harrisonia Bennettii, Lourea obcordata, Enhydra fluctuans.

(10) Distributed to the **Deccan** and **Indus** and **Gangetic plains.**
Galactia tenuiflora, Cassia auriculata, Rosa involucrata, Trianthema decandra, Oldenlandia umbellata, Ruellia prostrata, Euphorbia cristata, Croton oblongifolius, Sansevieria Roxburghiana, Cyanotis papilionacea, Paspalum pedicellare, Saccharum fuscum, Andropogon foveolatus, Iseilema laxum, Eragrostis tenella VAR. riparia.

(11) Distributed to the **Deccan** and **Malaya.**
Tiliacora racemosa, Mesua ferrea, Atalantia monophylla, Crotalaria quinquefolia, Cassia siamea, Bauhinia tomentosa, Ipomœa tridentata, Commelina salicifolia.

(12) Species distributed to **India** and **Malaya.**
Bombax malabaricum, Bauhinia malabarica, Terminalia Bellerica, Barringtonia acutangula, Morinda tinctoria, Vernonia anthelmintica, Oxystelma esculentum, Ipomœa sepiaria, Cuscuta reflexa, Capsicum frutescens, Striga euphrasioides, Bridelia retusa, Ficus Rumphii, Potamogeton indicus.

(13) Species distributed to **India, Malaya** and **China.**
Nasturtium indicum, Butea frondosa, Clitoria Ternatea, Cassia timoriensis, Buddleia asiatica, Solanum indicum, Datura fastuosa, Bonnaya brachiata, Striga Masuria (not to Malaya), Streblus asper, Polygonum stagninum, Pouzolzia indica, Monochoria hastaefolia, Axonopus cimicinus, Ischæmum rugosum, Sporobolus tremulus (not to Malaya), Eragrostis major.

(14) Species distributed from **India** to **Australia.**
Nymphaea Lotus, Nelumbium speciosum (also to China), Glycosmis pentaphylla, Crotalaria juncea, Indigofera trifoliata (also to China), Flemingia lineata, Cassia glauca (also in China), Dentella repens, Pterocaulon cylindrostachyum, Ichnocarpus frutescens, Dopatrium junceum, Utricularia flexuosa, U. exoleta, (all these also to China), Deeringia celosioides (also to China), Mallotus philippinensis (also to China), Cyperus platystylis, Leptochloa chinensis (also to China), Eremochloa muricata, Andropogon serratus.

(15) Species distributed from **Africa** to **Malaya** or **Australia.**

Cissampelos Pareira, Nymphaea stellata, Cleome viscosa, Gynandropsis pentaphylla, Portulaca oleracea, Tamarix gallica, Bergia ammanioides Calophyllum inophyllum, Sida cordifolia, Abutilon indicum, A. graveolens, Hibiscus surattensis, H. panduræformis, H. vitifolius, Thespesia Lampas, Waltheria indica, Triumfetta rhomboidea, Cardiospermum Halicacabum, Moringa pterygosperma, Crotalaria retusa, C. verrucosa, Indigofera linifolia, I. enneaphylla, I. viscosa, I. trita, Sesbania ægyptiaca, S. grandiflora, Æschynomene indica, Uraria picta, Alysicarpus monilifer, Desmodium triflorum, Cæsalpinia Bonducella, Adenanthera pavonina, Albizzia Lebbek, Ammannia peploides, A. baccifera, A. salicifolia, Mollugo Spergula, Vernonia cinerea, Grangea maderaspatana, Sphaeranthus africanus, S. indicus, Gnaphalium indicum, Plumbago zeylanica, Limnanthemum indicum, Cordia myxa, Heliotropium ovalifolium, Ipomœa chryseides, I. reniformis, I. obscura, Vandellia crustacea, Striga lutea, Justicia Betonica, Rhinacanthus communis, Ocimum canum, O. Basilicum, Moschosma polystachyum, Digera arvensis, Amarantus paniculatus, Pupalia lappacea, Aerua javanica, A. scandens, Polygonum plebejum, P. tomentosum, P. barbatum, Bridelia stipularis, Phyllanthus reticulatus, P. simplex, P. distichus, Flueggia microcarpa, Sebastiana Chamælea, Hydrilla verticillata, Zeuxine sulcata, Cyanotis cristata, Pandanus fascicularis, Pycreus nitens, Juncellus alopecuroides, Cyperus difformis, C. Iria, Mariscus microcephalus, Fimbristylis dipotoma, F. quinqueagularis, Scirpus articulatus, S. Michelianus, Paspalum longiflorum, Panicum flavidum, Perotis latifolia, Ischæmum laxum, Rottboellia exaltata, Andropogon squarrosus, A. caricosus, A. annulatus, Anthistiria imberbis, Elusine indica, E. ægyptica, Phragmitis Karka, Eragrostis interrupta.

(16) Distributed to **India.**

Tinospora cordifolia, Hibiscus ficulneus, Psoralea corylifolia, Alysicarpus rugosus VAR. styracifolia, Acacia catechuoides, Acacia concinna VAR. rugata, Conyza semi-pinnatifida, Xanthium Strumarium, Launea asplenifolia, Heliotropium strigosum, Lindenbergia urticæfolia, Hygrophila spinosa, Leucas mollissima, Rumex dentatus, Aristolochia indica.

(17) Distributed to **Africa** and **India.**

Cocculus villosus, Polygala erioptera, Hibiscus micranthus, Hibiscus Solandra, Indigofera pentaphylla, Tephrosia villosa, Trianthema crystallina, Giseckia pharnaceoides, Laggera aurita, Gnaphalium pulvinatum, Heliotropium supinum, Trichodesma indicum, Blepharis boerhaavifolia, Peristrophe bicalyculata, Priva leptostachya, Nothosærua

brachiata, Polygonum limbatum, Typha elephantina, Limnophytum obtusifolium, Pennisetum typhoideum, Andropogon Schœnanthus, Aristida funiculata, Sporobolus coromandelianus, Arundo Donax, Eragrostis cynosuroides.

(18) Distributed **throughout the tropics.**

Argemone mexicana, Sida veronicæfolia, Tribulus terrestris, Indigofera hirsuta, Rhynchosia minima, Tephrosia purpurea, Zornia diphylla, Abrus precatorius, Teramnus labialis, Parkinsonia aculeata, Cassia occidentalis, C. Sophera, C. Tora, C. alata, C. mimosoides, Tamarindus indica, Neptunia oleracea, Leucæna glauca, Acacia, Farnesiana, Jussieua repens, J. suffruticosa, Passiflora fœtida, Opuntia monacantha, Mollugo hirta, Ageratum conyzoides, Eclipta alba, Spilanthes Acmella, Bidens pilosa, Sphenoclea zeylanica, Mimusops Elengi, Coldenia procumbens, Heliotropium indicum, Solanum nigrum, S. torvum, Nicotiana Tabacum, Herpestis Monniera, Lippia nodiflora, Stachytarpheta indica, Boerhaavia repens, Amarantus spinosus, A. viridis, A. Blitum, Achyranthes aspera, Alternanthera sessilis, Chenopodium album, Polygonum glabrum, P. lapathifolium, Rumex maritimus, Euphorbia hypericifolia, E. pilulifera, E. thymifolia, Jatropha gossypifolia, J. Curcas, Ricinus communis, Ceratophyllum demersum, Vallisneria spiralis, Pistia Stratiotes, Lemna polyrhiza, Wolffia arrhiza, Potamogeton crispus, Juncellus pygmæus, Cyperus articulatus, C. corymbosus, C. rotundus, C. radiatus, C. digitatus, Eleocharis capitata, Fimbristylis miliacea, Bulbostylis barbata, Paspalum sanguinale, Panicum Crus-galli, P. colonum, P. prostratum, P. miliaceum, P. miliare, P. repens, P. proliferum, Setaria verticillata, Tragus racemosus, Imperata arundinacea, Manisuris granularis, Andropogon contortus, Cynodon dactylon, Chloris barbata.

(19) Distributed to **Western Asia** and **Europe.**

Melilotus alba, Chrozophora plicata, *also to Africa.*

(20) Distributed from **Europe** to **Malaya.**

Vandellia erecta.

(21) Distributed to **N. Asia, Europe, N. America.**

Ranunculus sceleratus.

III.—DESERT ZONE.

(1) Endemic to **Upper Burma.**

Boscia variabilis, B. prunoides, Capparis burmanica, C. orbiculata, C. polymorpha, Buchanania sp., Tephrosia Grahami, Acacia Kingii, Combretum apetalum, Vernonia gymnoclada, Diospyros burmanica, Atherolepis Wallichii, Lygisma angustifolia, Cœlodiscus lappaceus.

(2) Distributed to **China.**

Capparis flavicans, C. hastigera, Streptocaulon tomentosum, Phœnix humilis VAR. Loureirii.

(3) Distributed to the **Deccan.**

Capparis grandis, Melhania Hamiltoniana, Grewia hirsuta, Triumfetta rotundifolia, Zizyphus glabra, Mezoneurum hymenocarpum, Sarcostemma Brunonianum, Boucerosia umbellata, Premna latifolia, Boerhaavia repanda, Euphorbia antiquorum.

(4) Distributed to **Africa** and **India.**

Cratæva religiosa, Pavonia odorata, P. glechomifolia, Hibiscus lunariifolius, Acacia arabica, Calotropis procera, Withania somnifera, Euphorbia granulata.

(5) Distributed to **India** and **Malaya.**

Capparis horrida, Grewia abutilifolia, Acacia leucophlœa, Carissa Carandas, Leptadenia reticulata.

(6) Distributed from **India** to **Australia.**

Zizyphus Œnoplia, Cansjera Rheedii, Dichrostachys cinerea.

(7) Distributed from **Africa** to **Malaya** or **Australia.**

Corchorus fascicularis, Zizyphus Jujuba, Barleria Prionitis, Gloriosa superba.

(8) Distributed from **India** to **China.**

Adina cordifolia.

(9) Distributed to **India.**

Gardenia turgida, Vallaris Heynei, Pergularia pallida, Andrographis echioides, Loranthus pulverulentus.

(10) Distributed to **tropical Asia** and **Australia.**

Solanum xanthocarpum, Viscum orientale.

(11) Distributed **throughout the tropics.**

Corchorus acutangulus, Martynia diandra.

CHAPTER V.—ECONOMIC AND MEDICINAL.

Cereal crops.

The principal cereal crops on the alluvial belts of the Irawaddy and its tributaries, on the islands left bare by the Irawaddy when its level falls after the rains cease, and on the irrigated areas are rice and maize. There are innumerable varieties of the former, but

according to Mr. Parsons they may roughly be divided into four classes—

(1) *Kaukgyi*, grown chiefly in the irrigated areas.
(2) *Kauklat*, grown chiefly on the alluvial belt.
(3) *Kaukyin*, grown on irrigated areas and the tail-ends of irrigated areas, and almost entirely dependant on rainfall for their water-supply.
(4) *Mayin*, grown in the beds of lakes, tanks and marshes, and irrigated.

Kaukgyi rice is reaped in December and January, *kauklat* in December, *kaukyin* in November. *Mayin* is planted in February and March and reaped in June. Rice is usually transplanted, only occasionally sown broad-cast on lands flooded late in the season by the Irawaddy.

Maize, Burm. *Pyaung-bu*, is a common crop on the alluvial belt and wheat is also not uncommon, the latter sown in November and reaped in April. It is much liable to be attacked by rust. **Panicum miliaceum** (Burmese *Lu*) is a millet not infrequently cultivated along the bank of the Irawaddy).

In the desert zone the chief cereal is **Andropogon Sorghum**, (*Jowar*) or **Andropogon halepense**. **Setaria italica** (Burmese *Sat*) is also cultivated in the desert zone.

These millets are cultivated chiefly as fodder for cattle. Jowar is sown in August or September and reaped in January and February.

Leguminous crops.

These are cultivated on the alluvial belt and irrigated areas, and are known as *Kaing* crops. They are usually sown in November or December and gathered in March and April.

The following are the more important species with their Burmese names where known.

Phaseolus lunatus Linn. Burm. *Pè-talok*, "Chinese pea".
Phaseolus Mungo L. Burm. *Pè-nauk*.
Phaseolus calcaratus Roxb. Burm. *Pè-yin*.
Phaseolus trilobus Ait.
Dolichos Lablab L. Many varieties distinguished by different Burmese names, such as *Pè-bya*, *Pè-bazon*, *Pè-lun*, *Pè-gyi*, etc.
Dolichos biflorus L. Burm. *Pè-ngapi*.
Cajanus indicus Spreng. Burm. *Pè-singon*.
Canavalia ensiformis DC. Burm. *Pè-dalet*.
Cicer arietinum L. Burm. *Kala-bè*, imported only a few years ago and now much cultivated.

Cucurbitaceous crops.

These are also very common in the alluvial belt and irrigated areas. The more common species are :—

Lagenaria vulgaris Ser. Burm. *Bu-thee.*
Luffa ægyptiaca Mill.
Luffa acutangula Roxb.
Benincasa cerifera Savi.
Momordica Charantia L. Burm. *Kyet-hinga.*
Cucumis melo L. Burm. *Tha-khwa-thee.*
Citrullus vulgaris Schrad. Burm. *Payè-thee.*
Cucurbita maxima Duch. Burm. *Payon-thee.*

Edible tubers.

The plants cultivated for their tubers are chiefly :—

Ipomœa Batatas. Burm. *Kasun-u*, the sweet potato.

Dioscorea alata. A yam with several varieties distinguished by the Burmese names *myauk-pyu*, *myauk-gyin*, *myauk-kywe-gyo.*

At Sinbok an enterprising peasant had started cultivating the ordinary potato under Mr. Aubert's advice, quite successfully.

Plants with edible fruits.

Anona squamosa L. The custard apple, cultivated on alluvial soil.

Hibiscus esculentus L. Commonly cultivated. Its fruits used as a vegetable.

Citrus medica L. Lime, commonly cultivated.

Ægle Marmelos Corr. The Bael, commonly cultivated.

Mangifera indica L. "The mango, commonly cultivated. The various varieties in the district are grouped into two main classes, *manaw* and *loubu*, of which the former is the more valuable." So Mr. Parsons in his report.

Psidium Guyava L. Burm. *Mankala-bin*, commonly cultivated.

Punica Granatum L. Burm. *Talè-bin*, the Pomegranate, cultivated.

Carica Papaya L. The Papaya, commonly cultivated.

Vaccinium bancanum Miq. Wild on the Arracan Yomahs, fruit eaten by the Chins.

Diospyros burmanica Kurz. Burm. *Tè-thee.* Wild in the desert zone.

Solanum Melongena L. Burm. *Khayan-thee.* The brinjal, commonly cultivated, fruit used as a vegetable.

Lycopersicum esculentum Miller. Burm. *Khayan-gin-thee.* The Tomato, commonly cultivated. The common Burmese tomato is quite a small thing, the large one being imported from India.

Baccaurea sapida Muell. Burm. *Kanazo*, wild.

Artocarpus integrifolia Linn. f. The Jack fruit, commonly cultivated.

Musa sapientium L. The plantain. There are two varieties cultivated known as *yakaing* and *pigyan*.

Cocos nucifera L. The coco-nut, abundantly cultivated in the alluvial belt and river valleys.

Plants occasionally eaten or used in times of scarcity.

Nymphæa stellata Willd. Burm. *Kya-u*. Tubers boiled and eaten in times of scarcity.

Capparis burmanica Kurz. Burm. *Kauk-kwé-za*. Fruit eaten in times of scarcity.

Zizyphus Jujuba Lamk. Burm. *Zi-bin*. Fruit eaten in times of scarcity.

Buchanania (?) glabra Wall. Burm. *Lun-bin*. The kernel of the fruit is roasted and eaten. The flavour is quite pleasant.

Cæsalpinia digyna Rottl. Burm. *Sun-lethet-thee*. Seeds roasted and eaten, quite palatable.

Dioscorea dæmona Roxb. Burm. *Kywe-u*. Wild yam. Eaten in times of scarcity.

Dioscorea bulbifera L. Burm. *Khadu*. Also a wild edible yam.

Eleusine ægyptica Desf. Burm. *Legwa*. Eaten in times of scarcity. Mr. Parsons mentions the Burmese names of several other plants used as food in famine times, but the writer unfortunately did not meet with them, so is unable here to give their botanical identifications.

Plants used in curries, etc.

Ranunculus sceleratus L. Burm. *Tanga-ngayok*, used in curries.

Brassica juncea Hook. f. & T. Commonly cultivated.

Lepidium sativum L. Burm. *Samon-hpwe*. Commonly cultivated.

Raphanus sativus L. Commonly cultivated.

Capparis flavicans Wall. Leaves eaten in curries.

Moringa pterygosperma Gærtn. Burm. *Dandalon-bin*. Leaves and fruit eaten in curries.

Sesbania ægyptiaca Pers. Burm. *Yé-tha-gyee*. Young leaves, flowers and fruit eaten in curries.

Sesbania grandiflora Pers. Burm. *Pauk-pan-bya-bin*. Young leaves, flowers and fruit eaten in curries.

Cassia glauca Lamk. Burm. *Pyi-ban-nyo*. Tender leaves and flowers eaten in curries.

Acacia concinna DC. Young leaves and flowers eaten in curries.

Fœniculum vulgare L. Burm. *Sa-meit.* Used as a condiment.

Coriandrum sativum L. Burm. *Nan-nan-bin.* Used as a condiment.

Carthamus tinctorius L. Burm. *Su-pan.* Young leaves eaten in curries.

Cordia Myxa L. Burm. *Thanat-pin.* Young leaves and young fruits eaten in curries.

Solanum torvum Sw. Burm. *Khayan-kasaw.* Fruit used as a condiment.

Capsicum frutescens L. Commonly cultivated.

Ocimum canum Sims. Burm. *Pin-sein.* Used as a condiment.

Phyllanthus distichus Muell. Arg. Young leaves eaten in curries.

Zingiber sp. Cultivated by the Chins on the Arracan Yomahs.

Allium Cepa L. Onions are largely grown in the cold weather, sown in December or January and dug up in March or April.

Borassus flabellifer L. The rootlet of the embryo palm is considered a great delicacy, and the seeds are often sown expressly to obtain it.

Dye Plants.

Zizyphus Jujuba is not itself a dye plant, but it is one of the plants on which lac is deposited, and hence may be mentioned here.

Indigofera sumatrana Gærtn. and **Indigofera suffruticosa** Mill (I anil L.), are both cultivated, and appear to be both called *mé-bin.* Sown in June and cut in October. Earthenware pots are used as vats and lime is added to precipitate the dye.

Parkinsonia aculeata L. Burm. *Kwunya-si-bin.*

The leaves and young pods of this species are used by the country people to produce a greenish yellow dye, which, however, is not very fast.

Butea frondosa Roxb. Flowers used to produce an 'old gold' colour.

Combretum trifoliatum Vent. Burm. *Hsauk-bin.*

A decoction of the leaves of this plant is used to dye cloth a dirty brown colour, which on soaking the cloth in mud for several days changes into a permanent black.

Anogeissus acuminata Wall. VAR. lanceolata.

The bark is cut into chips and boiled in water. The solution resulting dyes cotton yarn or cloth a brownish colour, which deepens to black after soaking in the mud of pools.

Carthamus tinctorius L. Burm. *Su-pan.*

A decoction of the flowers is used by the Burmese to dye cotton yarn a golden yellow colour.

Morinda tinctoria and **M. persicæfolia** appear both to be used as dye plants, the latter by the Chins.

Artocarpus integrifolia Burm. *Peik-hnè-bin.* This plant gives the yellow dye of the Buddhist monk's robes. The wood is cut into chips which are then soaked in water and boiled several times. The cloth is then soaked in the water until properly stained. A vegetable mordant is afterwards used to fix the dye, but the plant yielding it was not met with, at least not recognised as such.

Fibre Plants.

Gossypium sp. Cotton, though not a fibre, may most conveniently be mentioned here. It is cultivated to a small extent in the desert zone and by the Chins.

Bauhinia racemosa Lamk., yields a fibre from its bark, which is employed to make ropes.

Crotalaria retusa L. Burm. *Paik-san-bin.*

This species is cultivated in patches all over the alluvial belt for its fibre from which nets and ropes are made.

Agave sp. Burm. *Tazaung-let-pat*, a wild species from which fibre is extracted for manufacture of thread and ropes.

Oil Plants.

Sesamum indicum DC. is, along with *Andropogon Sorghum*, the chief crop of the desert zones. There are two varieties, an early (*hnanyin*) which is sown in June and reaped in September, and a late (*hnangyi*) which is sown in September and reaped in January or February. The oil is extracted in a primitive and wasteful manner in a huge wooden mortar with a correspondingly large wooden pestle, which is worked by a mechanism driven by ox-power.

Tobacco.

Tobacco is cultivated on the richest lands. The Burman peasant smokes two kinds of cheroots, one of gigantic proportions, the outer wrapping of which is made of the bracts surrounding the female inflorescence of the maize, the other about the size of an ordinary cigar with a green outer wrapping made from the leaves of *Cordia Myxa*.

Betel.

Piper sp. is cultivated here and there in the district : the betel vineyards seldom exceed half an acre in extent, and are irrigated from wells.

Liquor.

The ordinary country fermented liquor of the district is obtained from the Toddy palm, *Borassus flabellifer*, (Burm. *Htan-bin*), which is so abundant about villages in the alluvial belt. The juice extracted is to a great extent employed to make 'jaggery,' a brownish coloured somewhat toffy-flavoured sweetmeat.

The Chins concoct a most potent nectar, called *Khaung*, for which there are two recipes, in neither of which the writer regrets he can give all the ingredients correctly identified. However they are set down here incomplete as they are.

1ST RECIPE.

(1) Leaf and fruit of Solanum verbascifolium.
(2) Bark of Aporosa oblonga.
(3) Leaf of an unknown climber.
(4) Pounded rice-flowers.

2ND RECIPE.

(1) Fruit of Solanum indicum.
(2) Bark of *Thit-cho-bin*, a sapotaceous tree not identified.
(3) Pepper seed.
(4) Ginger rhizome ground down.
(5) Pounded rice flowers.

The second recipe is the more commonly used.

Plants with miscellaneous uses.

Abrus precatorius L. Burm. *Ywe-galé*.

The seeds of this are occasionally used by goldsmiths as weights.

Gardenia turgida Roxb. The fruit.—Burm. *Thamin-sa-hpyu-thee* —is pounded and used in water as a soap for cleansing clothes.

Artemisia pallens Wall. is cultivated for its perfume.

Ærua javanica Juss. Burm. *On-bwe*. The flowers of this are used for stuffing pillows.

Celosia cristata Linn., cultivated for its flowers, which are used by the women to adorn their hair.

Gomphrena globosa L. cultivated like the last.

Cinnamomum Tamala Nees.

The Chin women undergo about the age of fourteen the ordeal of having the whole face closely tatooed black, which gives them a grotesquely hideous appearance. The legend runs that this curious practice originated in the desire to render the Chin women repulsive

to the Burmese officials who were wont to carry off the more comely amongst the maidens to adorn their harems. Formerly the leaves of Cinnamomum Tamala were pounded down and a solution made with water, which was employed to produce this most uncosmetic effect. Now-a-days the more prosaic lamp black is used.

Gloriosa superba L. Burmese women are said to partake of the tubers of this plant as a means of committing suicide under stress of blighted affections.

Imperata exaltata Brongn. Burm. *Thetké*, is used as thatching material.

Saccharum fuscum Roxb. Burm. *Yin-bin.*

The stems of this are used in making fishing nets or rather enclosures for entrapping fish, and in making 'chicks.'

Phragmites Karka Trin. Burm. *Kyu-bin.*

The stems of this are split and woven into mats.

Borassus flabellifer L. The old leaf bases of this palm are utilised as bird scarers, being strung at intervals on strings stretched over growing crops. They are deceptively like dead birds strung up.

Medicinal Plants.

In the following list the medicinal properties described are the medicinal properties ascribed to the various plants by the peasantry of the district, and nothing more.

Cissampelos Pareira L. Burm. *Kywet-nabaung.*

A paste is made from all parts of the plant and used as a local application in inflammatory conditions of the eye.

Capparis hastigera Hance. Burm. *Namanee-thanyet-gyi.*

A paste of the root is used as an application to sores.

Capparis flavicans Wall. Leaves are used as a galactagogue.

Taraktogenos Kurzii King. Burm. *Kalaw-bin.*

The oil from the seeds of this plant is used in conjunction with the oil obtained from the seeds of **Semecarpus albescens** Kurz, in the treatment of Leprosy.

Limonia acidissima L. Burm. *Thanakha.*

The bark of this is powdered and made into a paste as a cosmetic application to the face.

Ventilago calyculata Tul. Burm. *Thwé det.*

A paste of the root is employed as a local application to excite granulation in wounds.

Semecarpus albescens Kurz. Burm. *Chi-thee.*

Seeds used in the treatment of leprosy as already mentioned under *Taraktogenos Kurzii.*

Leucæna glauca Benth. Burm. *Aseik-hpye-bin.*

A paste of the leaves used as an application to poisonous bites or stings.

Acacia concinna DC. Ripe fruit used to clean the hair.

Acacia Farnesiana Willd. Burm. *Naulongyaing.*

A paste of the root is applied to the hoofs of cattle as a parasiticide or as a preventive of the attacks of parasites.

Rosa involucrata Roxb. Burm. *Myit-kyng.*

A decoction of the root is used as a mouth wash in dental caries.

Elephantopus scaber L. A decoction of the stem and leaves is used in menstrual disorders.

Sphæranthus indicus L. A decoction of the whole plant pounded down is employed as a tonic drink.

Sphæranthus peguensis Kurz. Burm. *Ko du-bin.*

A paste of the leaves is used as a styptic, and is also used in hot fomentations.

Xanthium Strumarium L. Burm. *Si-hnè.*

A decoction of the whole plant is used as a tonic for cattle.

Ardisia humilis Vabl. Burm. *Shadwé.*

All parts of the plant are used in the treatment of menstrual disorders.

Buddleia asiatica Lour. A paste of the root is taken in rice water by the Chins as a tonic.

Heliotropium indicum L. Burm. *Hsin-hnamaung-bin.*

A decoction of the whole plant used in treating Gonorrhœa.

Premna latifolia Roxb. Burm. *Seiknan-gyi.*

A paste of the root is used as a local application after parturition.

Ocimum canum. Sims. Burm. *Pin-zein,* used as a diuretic medicine for horses.

Ærua javanica Juss. Burm. *On-bwè.*

A paste of the root used as an application in acne-like conditions of the face.

Chenopodium album L. Burm. *Myu.*

A paste of the root used in treating the diarrhœa of children.

Aristolochia indica L. Burm. *Eikthaya-moolee.*

A preparation of the root used externally and a decoction of the leaves given internally in skin-eruptions of children.

Polygonum tomentosum Willd. Burm. *Wetkyien.*

A decoction of the root used in the stomachic troubles of children.

Viscum orientale Willd. Burm. *Kyibaung.*

A paste of the powdered leaves used as a local antiphlogistic application.

Chrozophora plicata A. Juss. Burm. *Gyo-sagauk.*

A decoction of the whole plant used in treating Gonorrhœa.

Croton oblongifolius Roxb. Burm. *Thetyin-gyi.*

Leaves used in hot fomentations to allay inflammation, either strained in a cloth or first made into a paste.

Euphorbia antiquorum L. Burm. *Teinganeik-tazaung.*

The branches are sliced, dried and powdered and administered to check profuse lochial discharge.

Streblus asper Lour. Burm. *On-hnè-bin.*

A decoction of the dried leaves is administered in dysentery.

Dioscorea bulbifera L. Burm. *Khadu.*

Used as a galactagogue.

Arundo Donax L. Root used as a diuretic.

Timber trees.

The following is rather a selective than an exhaustive list. The names in brackets are the Burmese names, either obtained by the writer on the spot or taken from Gamble's Manual of Indian timbers:—

Mesua ferrea (*Gangaw*), Dipterocarpus tuberculatus (*Eng.*), Pentacme suavis (*Ingen* or *Ingyn*), Bombax malabaricum (*Letpan*), Sterculia colorata (*Wetshaw*), Cedrela Toona (*Thitkado*), Melanorrhœa usitata (*Thitsi*), Odina Wodier (*Hnabè*), Millettia pendula (*Thinwin*), Butea frondosa (*Pauk*), Dalbergia cultrata (*Yindaik*) Pterocarpus macrocarpus (*Padauk*), Tamarindus indica (*Magyi*), Bauhinia purpurea (*Mahahlegani*), Bauhinia variegata (*Bwècheng*), Xylia dolabriformis (*Pyingado*), Adenanthera pavonina (*Ywegyi*), Acacia arabica, Acacia leucophlœa (*Tanaung*), Acacia catechuoides (*Sha*), Albizzia Lebbek (*Kôkko*), Albizzia procera (*Sit*), Terminalia Bellerica (*Thitsein*), Terminalia tomentosa (*Taukkyan*), Anogeissus acuminata

(*Yón*), Lagerstrœmia parviflora (*Tsambelay*), Lagerstrœmia tomentosa (*Lèya*), Duabanga sonneratioides (*Myauk-ngo, mau-lettanshe*), Adina cordifolia (*Hnaw*), Mitragyna parvifolia (*Teinthe*), Hymenodictyon excelsum (*Kusan*), Mimusops Elengi (*Kaya, Chaya*), Schrebera swietenioides (*Thitswèlwè*), Holarrhena antidysenterica (*Lettôkkyi, letthôkthein*), Millingtonia hortensis (*Egayit*), Dolichandrone stipulata (*Mahlwa, paukkyan*), Heterophragma sulfureum (*Thitlinda, Kyaung-letto*), Heterophragma adenophyllum (*Petthan*), Stereospermum chelonoides (*Singwe, thakutpo*), Tectona grandis (*Kyún*), Tectona Hamiltoniana (*Dahat*), Gmelina arborea (*Yamane*), Cinnamomum obtusifolium (*Lulingyaw*), Bridelia retusa (*Seikchi*), Streblus asper (*Onhne*), Castanopsis tribuloides (*Kyausa*).

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RECORDS

OF THE

BOTANICAL SURVEY OF INDIA

VOLUME III—No. 2.

THE VEGETATION OF THE DISTRICTS OF HUGHLI-HOWRAH AND THE 24-PERGUNNAHS.

BY

D. PRAIN.





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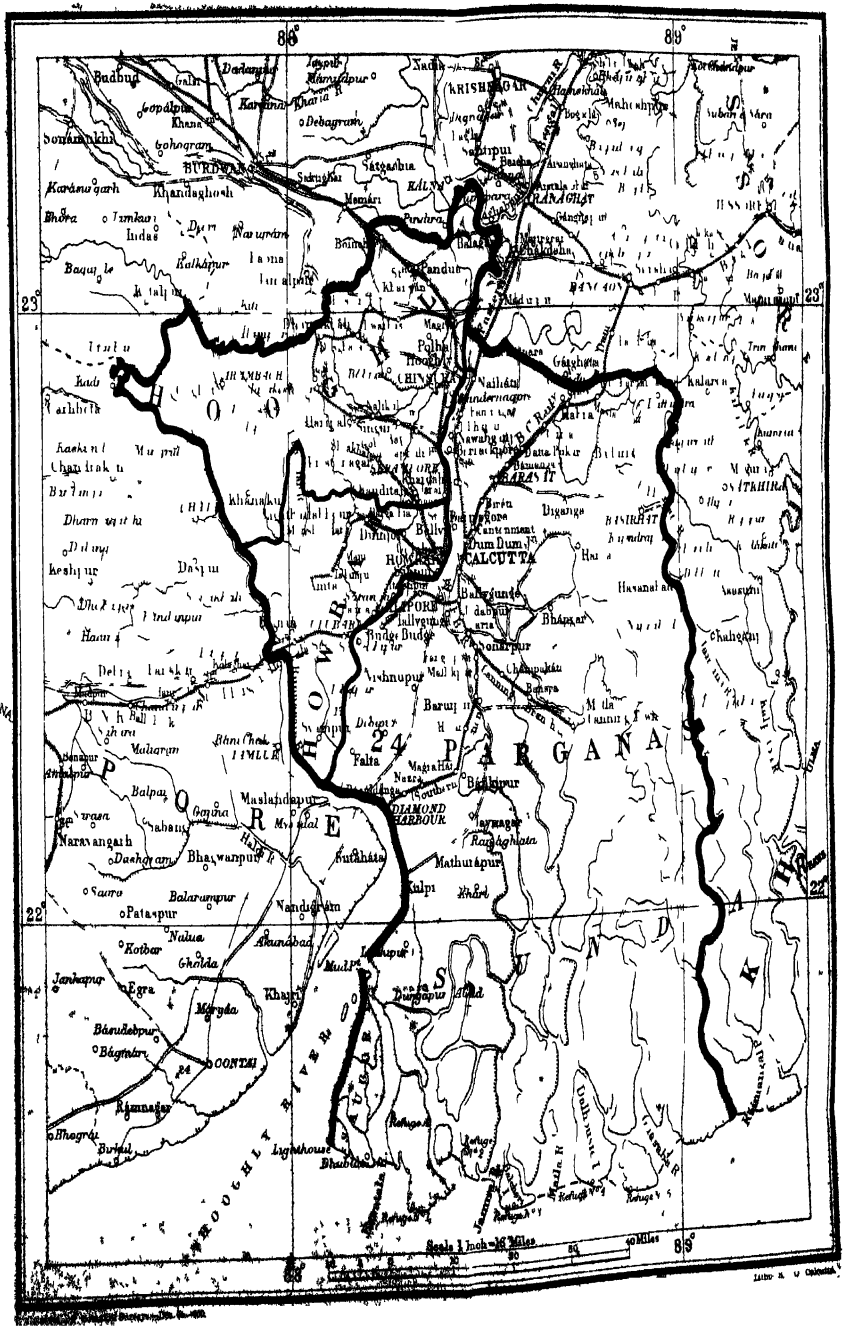
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Map to Illustrate the PLANTS in the Districts of HOOGHLY, HOWRAH, & 24-PARGANAS.



THE VEGETATION OF THE DISTRICTS OF HUGHLI-HOWRAH AND THE 24-PERGUNNAHS.

By D. PRAIN.

I.—INTRODUCTION.

It has often been impressed upon the writer that a concise list of the plants to be met with in the vicinity of Calcutta might be useful to those whom duty or pleasure lead to reside in that city. The present paper is an attempt to supply such a list.

This is by no means the first attempt to do what is required. It appears probable from letters that have been consulted by the writer, written between 1796 and 1823 by Dr. Francis Buchanan (afterwards Hamilton), once Superintendent of the Royal Botanic Garden, that in its original form the *Flora Indica* of Roxburgh only consisted of the brief diagnoses which accompany all the species, and that the long and lucid descriptions which in the work, as we know it, are given for many, but not all, of the plants dealt with, were intercalated subsequently. It further appears that manuscript copies of the original *Flora* were available for use as early as 1798 by at least some of Roxburgh's botanical friends. This, though it certainly covered a wider field than the vicinity of Calcutta, or indeed than the Presidency of Fort William, may be considered the first attempt to provide a list such as is required.

The first serious attempt to provide exactly what is wanted was made in 1839 by J. W. Masters on behalf of the members of the Agricultural and Horticultural Society of India. The title of Masters' paper, *Calcutta Flora, containing a Synopsis of Plants indigenous to or cultivated in the vicinity of Calcutta, arranged according to their natural families; with observations on the properties, and manner of cultivating some of the most interesting*,[1] shows that the design of the author was somewhat ambitious: it is not therefore surprising to

[1] Transactions of the Agricultural and Horticultural Society of India, vii. 39-85 (1840). The paper was read 12th June 1839.

find that he only succeeded in carrying his synopsis as far as the *Malvaceæ*, and although it appears that he had intended to resume the project at a later date he never did so.[1] The portion actually published was, as he himself explains, only a rough copy of a portion of the projected work, and if one may judge from this portion it is possible that it would have proved less useful than Masters anticipated. The whole list, Masters says, was to have included 3,972 species.

It is probable that one reason why Masters never resumed his *Calcutta Flora* was that about the same time Voigt was engaged in preparing his well-known *Hortus Suburbanus Calcuttensis*, published at Calcutta in 1845. J. O. Voigt, one of the most painstaking botanists who has worked in India, was appointed Surgeon to the Danish Colony of Serampore in 1827, when 29 years of age. Under the influence of the veteran Dr. Carey he gave much of his spare time to botanical study, and in 1834, on Dr. Carey's death, he took charge of Dr. Carey's garden at Serampore, and out of pious regard for Carey's memory set to work almost at once to put into permanent form the results of Carey's botanical and cultural work during the preceding 30 years.

The Serampore Garden, in Carey's and Voigt's day almost as important as the Botanic Garden at Shibpur, worked hand in hand with the latter institution. Thus it was Dr. Carey, and not the Honourable Company, who in 1814 undertook the task of publishing Roxburgh's *Hortus Bengalensis*, in which are catalogued the 3,500 species in cultivation in the Royal Botanic Garden between 1786 and 1814. It is on this invaluable work which, but for the existence of the Serampore Garden, we should never have possessed, that Voigt's larger one was based. Voigt's *Hortus*, however, included the entries in Carey's *Garden Receipt Book*, so that it dealt with all plants that had lived at Serampore, but had succumbed at Shibpur, and all plants introduced at Serampore between 1814 and 1834. It included besides, the catalogue drawn up by Masters to serve as the basis of that writer's abandoned *Calcutta Flora*, showing all the plants introduced into the Shibpur Garden between 1814 and 1836. It included too a list by Dr. Wallich of plants introduced to the Royal Botanic Garden between 1836 and 1840, supplemented by a list made by Voigt himself, while acting in 1842 for Wallich, up to 1843. Voigt's

[1] The paper concludes as follows (*Trans. Agri.-Hort. Soc. India* vii. 85):—"Here I am obliged suddenly to break off being engaged in more important "matters; the whole of my time is taken up with them, and I cannot devote any "more to this subject at present.—*J. W. Masters. May 3, 1830.*"

superintendence at Serampore enabled him to include all the species introduced there from 1834 to 1843.

The unfortunate illness and death of Voigt in 1843 prevented the issue of the work by the author. His manuscript, as it stood at the end of 1841, was made over to the Agricultural and Horticultural Society, and the printing of the work at the Society's expense was begun. After 16 pages had been printed, some hitch arose and the printing was suspended. However, after Voigt's death, Griffith, who considered the work very valuable, arranged to see it through the press. Before, however, the Indices were commenced Indian Botany had to lament Griffith's untimely death, and Mack who, in consequence, undertook their preparation also died before they were completed, so that it was 1845 before the work was issued.

The scope of the work is hardly completely indicated by its title, which is:—*Hortus Suburbanus Calcuttensis. A Catalogue of the Plants which have been cultivated in the Hon. East India Company's Botanical Garden, Calcutta, and in the Serampore Botanical Garden, generally known as Dr. Carey's Garden, from the beginning of both establishments* (1786 *and* 1801) *to the end of August*, 1841. *drawn up according to the Jussieuan arrangement, and mostly in conformity with the second edition* (1836) *of Lindley's Natural System of Botany*.[1]

It contains remarks on each natural order, the names of the plants enumerated, the Bengali names of those indigenous to or commonly cultivated in Lower Bengal, the habit, time of flowering and the flower of each individual species; the habitat, properties and uses of each. The number of natural families dealt with is 278, of genera 1,737, of species 5,515.

Of the great merit of the work it is hardly necessary to speak. Yet the value of the *Hortus Suburbanus* has been found, by those who have had to work with Indian plants elsewhere than in Lower Bengal, to be comparatively small. Hooker and Thomson, for example, have pointed out that the *Hortus* is "not available as a work of reference, nor can we refrain from expressing our regret that talents of so high an order should have been devoted to a work of so little practical use." This is in one sense perfectly true, for Voigt's references are not accompanied by adequate descriptions; and when Roxburgh, in whose *Flora Indica* a large proportion of the species are described, has been cited, the subsequent citation of Voigt is supererogatory. There is, however, a sense in which the verdict just quoted is inapplicable. The work, when

[1] Calcutta: Bishop's College Press, 1845. 1 vol., large 8vo.

employed as Voigt intended it to be, as a guide to the plants in cultivation in gardens in and about Calcutta, is not only the best, but, in the estimation of the native inhabitants of our districts, the only guide that is of the slightest use. This, however, is less because of any virtue in the arrangement or any merit in the scientific matter, than because the native names given are not only selected with much care and critical insight but are given in their original characters.

Perhaps the greatest defect in the work is that it goes too far and deals not only, as its title implies, with the plants cultivated in the two gardens at Calcutta and Serampore but includes as Masters in his venture proposed, the indigenous plants as well. Its chief use is undoubtedly as a guide to the exotic plants cultivated in the neighbourhood of Calcutta; in this respect it still is, and will long continue to be, invaluable. As a guide to the non-exotic plants of the neighbourhood it is much less useful; indeed, as Hooker and Thomson say, it is not in this respect suitable as a work of reference.

In 1862 an attempt was made to utilise the information regarding the indigenous species enumerated in Voigt by R. Anderson in a *Catalogue of Plants indigenous in the neighbourhood of Calcutta with directions for the examination and preserving of plants.*[1] This compilation consists of a bare list of the plants given by Voigt as natives of Serampore with the names brought more or less up to date, but the list is badly printed and abounds with uncorrected printer's errors. Moreover, it does not give the vernacular names so carefully collected by Voigt, so that it is of no practical use except as a check list. The only valuable part of the pamphlet is the portion dealing with the examination and preservation of specimens which is taken from the introduction to the Colonial Floras published by the authority of Government. The number of natural families given is 86, of genera 327, of species 738.

In the present paper an attempt is made to do more thoroughly what was attempted by Anderson. It has not, however, appeared feasible to define the neighbourhood of Calcutta more rigidly than to consider this as including, to the east of the Hughli, the whole of the 24-Pergunnahs in which Calcutta lies, and on the west of the Hughli, the two districts of Howrah—where we have Shibpur and the Royal Botanical Garden, and Hughli—which includes Serampore. The list therefore enumerates all species hitherto collected within these three districts. But the district of the 24-Pergunnahs includes the Western Sundribuns where we have typical mangrove-swamp forests;

[1] Calcutta: Bishop's College Press: 1862.

at the same time the most westerly sub-division (Goghat) of the Hughli district, lies beyond the Dwarkeswar river and outside the limits of the deltaic alluvium on which Calcutta is built, so that its flora is to a considerable extent that characteristic of drier districts like Bardwan and Birbhum. On either side of the river Hughli therefore we find, within the districts with which we have to deal, types of vegetation that are very distinctive, each including a number of species that are not to be met with in the immediate vicinity of Calcutta. But the actual number of species of each class, as compared with the total number of species in the list, is not very great and it is hardly worth while, for the sake of excluding them, to have recourse to the unnatural step of proposing arbitrary boundary lines for the 'neighbourhood' of Calcutta.

In drawing up the systematic list an enumeration has been made of all the flowering plants hitherto collected in our districts and of all the cryptogams, except the Fungi, of which named specimens are preserved in the Calcutta herbarium. It is, however, certain that, except as regards the Pteridophyta and Bryophyta, these cryptogamic lists are quite incomplete. As regards the Fungi, though the Calcutta material is fairly extensive, it has been so inadequately studied that a list of its named species would serve little useful purpose.

In the case of the Phanerogams all plants that are certainly wild in the districts are included. That a plant is wild in these districts is, however, no indication that it is indigenous. There is a sense in which, except perhaps in the Goghat sub-division of the Hughli district, no species *can* be indigenous in our area; the whole or nearly the whole tract consists of land laid down by the great river Ganges or its distributaries, and therefore all the plants growing on its surface *must* be immigrants from elsewhere. Even, however, if we admit this to be the case, the fact is not altered that a considerable number of species, some of which have certainly been originally deliberately introduced, (*Bryophyllum calycinum*, *Turnera ulmifolia*, *Opuntia Dillenii*, *Passiflora suberosa* are examples), though not even originally natives of India, are now absolutely established as *wild* plants in our area. But besides wild plants, whether native in the sense that they may have spread to these alluvial tracts from the adjacent higher ground of West Bengal or that they may have been brought by ocean currents, by rivers, by winds, or by living creatures other than man, the list includes all the crops cultivated in fields or gardens in the districts; and such trees or shrubs or herbs as are to be found in native gardens, or in village-

shrubberies or by roadsides. Trees or shrubs or herbs that are only to be found in large public gardens or are only to be met with, as a rule, in the gardens of Europeans, are excluded except in the few cases, such as those of *Browallia elata*, *Hymenantherum tenuifolium*, *Torenia Fournieri*, and *Helianthus argyrophyllus* which habitually, or such as those of *Phlox Drummondi*, *Petunia nyctaginifolia*, and *Alyssum maritimum* which occasionally occur as self-sown plants in garden plots or in waste corners where the soil is good.

The question of showing whether a species is or is not wild, or whether it is or is not native, by the use of distinctive types in the systematic list, therefore appears neither to be practically useful nor to be altogether possible. All that it has appeared advisable to do has been to distinguish by means of an asterisk such species as may be certainly deemed *native* in the sense that (1) they are not cultivated plants; (2) they are thoroughly established plants; (3) they have been either introduced by other than human agency, or, if they have been introduced by man, the introduction has been inadvertent and they have been obviously introduced from some part of South-Eastern Asia. On the other hand, plants that are not distinguished by an asterisk, and among phanerogams these are about as numerous as plants of the preceding class, include species that cannot be certainly deemed native, because (1) they are only to be found in cultivation; (2) they are weeds that only occur associated with *cold-weather* crops, and that do not re-appear unless their seeds are re-sown with these crops; (3) they are plants that, even if now spontaneous, have clearly been originally purposely introduced by man, or, if their original introduction was inadvertent, have as their natural habitat some country other than India, Indo-China or Malaya. With this class are necessarily included such species as have been recorded from our area by previous botanical writers, such as Roxburgh, Wallich, Griffith, and Voigt, but which have not been met with in recent years. The omission of the distinguishing asterisk, it is hardly necessary to remark, does not imply doubt as to the accuracy of the record; when there is a doubt as to this, the fact is mentioned in the text. The probability is that, in most instances, the old records which have not been repeated are records of species which have appeared only as casuals in our area. A considerable number of recent records belong obviously to the same class; these are similarly shown in the subjoined list without an asterisk.

As one of the uses to which it is hoped those who may employ it will put the present list, is the verification of some at least of these

former records the entries of all the species in the *Hortus Suburbanus Calcuttensis* have been cited. At the same time, with a view to assisting those who may employ the list in identifying the various species, references are also given to the writer's work entitled *Bengal Plants* in which will be found definitions of all the natural families and genera, accompanied by a series of keys to the great majority of the genera and species here enumerated. If in any case further reference is required to full specific descriptions or to figures, the necessary information will be found either in Roxburgh's *Flora Indica* to which both the *Hortus Suburbanus* and *Bengal Plants* will guide the student; or in Hooker's *Flora of British India* and Beddome's *Ferns of India and Ceylon*, to which references are made in *Bengal Plants*.

The present list deals with 120 natural families of phanerogams including 670 genera and 1,316 species. Of these 1,316 species about 120 are staple field or garden crops; 260 are plants that for one reason or another have been deliberately introduced, and 21 are species that have been certainly, though inadvertently, introduced by human agency. The remaining species may be considered native in a qualified sense; they include about 700 species fairly widely spread in South-Eastern Asia; 30 that are only to be found in the extreme north-west portion of our area (the Goghat sub-division of Hughli); 85 that are either confined to the Sundribuns or only extend a little way north from the Sundribuns into the Gangetic delta; and about 100 that extend from the northern part of our area into the Sundribuns.

The cryptogamic portion of the list deals with 37 natural families, including 92 genera and 175 species.

II.—TOPOGRAPHY AND VEGETATION.

The whole of the area included in the three districts around Calcutta is, in appearance and almost in reality, a level plain, though there is, as a matter of fact, a very gentle and gradual rise from the Sundribuns sea-face in the south-east of the 24-Pergunnahs to Goghat in the north west of Hughli, and about Badanganj—the extreme western portion of the Goghat sub-division—a slight amount of natural undulation in the ground is perceptible. Except this Goghat sub-division, which lies west of the Dwarkeswar river and as already explained belongs really to West Bengal, the rest of the Hughli district and the whole of the Howrah district belong to the rice swamp of Central

Bengal. The same is true of a considerable portion of the 24-Pergunnahs from the river Hughli eastward and southward to a line running roughly from Mud Point north-westward to Basirhát. The large irregularly triangular slice of territory bounded on the west by the Hughli from Saugor light-house to Mud Point and from Mud Point to Basirhát by the arbitrary line just mentioned, on the east by the Raimangal river, and on the south by Bay of Bengal, which completes our area, forms the western portion of the Sundribuns.

The Hughli-Howrah districts, with the exception of the Goghat sub-division west of the Dwarkeswar, and the non-Sundribun portion of the 24-Pergunnahs may be taken together. They form part of Central Bengal and are typically representative of the great alluvial rice-plain of the Gangetic delta. The only natural high ground is along the banks of the main streams, and the only other high lands met with are the more or less artificial patches around villages and towns and the obvious mounds and embankments thrown up around ponds and along canals, or as means of communication by road or rail.

The greater portion of the area is under cultivation, all the low land being under rice-cultivation. Along the banks of the chief waterways where these are under tidal influence, we find a narrow hedge, or scattered patches of species that are characteristic of the Sundribun region, while on the mounds or embankments that have been artificially raised, and in the immediate vicinity of most villages and towns, we find groves and thickets of trees and shrubs, many of them subspontaneous only, a large proportion of them more or less economically useful, and a considerable number of them natives of countries other than India.

There is nothing that could possibly be termed genuine forest in the whole of this area, though in the north-eastern corner of Hughli in the Balagarh thana there is a certain amount of jungle including genuine forest trees as apart from the trees more characteristic of village and suburban shrubberies. Along the Damodar river there extends to the west a narrow strip, five or six miles wide, which is heavily flooded during every rainy season and is mostly uncultivated. This tract, which begins two or three miles west of the river bank,—for a narrow band along the western bank of the Damodar is highly cultivated during the cold weather—is under coarse grass and is practically uninhabited. In a few localities, where places formerly inhabited have been abandoned, as for instance, on the site of Satgaon, a little jungle, approaching to a true forest in character and appearance, may be met with.

The Goghat sub-division which, as has been explained, belongs to Western rather than Central Bengal, is as closely cultivated as the main portion of our area. The village-shrubberies are, however, less extensive and the species characteristic of roadsides and such waste places as exist include not a few that are unknown elsewhere in our area; *Cissampelos Pareira, Polycarpæa corymbosa, Salomonia oblongifolia, Ventilago maderaspatana, Desmodium heterophyllum, Cassia Absus, Drosera Burmanni, Wendlandia exserta, Morinda citrifolia, Cyathocline lyrata, Gnaphalium pulvinatum, Holarrhena antidysenterica, Mitrasacme alsinoides, Heliotropium ovalifolium, Striga lutea, Striga euphrasioides, Gmelina arborea, Moschosma polystachyum, Leucas mollissima, Commelina attenuata, Juncus [illegible] matocarpus, Courtoisia cyperoides, Fimbristylis argentea, Pan[illegible] pseudopodium, Digitaria pedicellaris, Tragus racemosus, Andropogon brevifolius, A. pertusus, Isolema laxum, Aristida Adscensionis, Polypogon monspeliensis, Arundinella Wallichii, Eragrostis coarctata, Chloris virgata*, also as cultivated species *Papaver somniferum Guizotia abyssinica* and *Hordeum vulgare* exhaust the list of species that are only known from Goghat.

It has, however to be remarked that a very considerable number of species which are only certainly known to the writer to occur, within our area, in Goghat west of the Dwarkeswar river have been reported from Serampore by Voigt. We know, however, from various passages in Voigt's *Hortus* that some at least of the plants he records were obtained, not by Voigt but by native collectors sent out by Carey or by himself, and it is, therefore not improbable that these collectors in their search for additional species at times visited the corresponding country further south. This is rendered still more probable from the fact that Voigt's Serampore list includes not a few plants that have not been obtained even in Goghat and that we know to be strangers to or only casuals in the Gangetic delta.

A very noticeable feature in the list of these western dry country species from Goghat is the number of species of grasses to be found there that do not grow on the mud of the delta. The vegetation of Goghat is in fact that characteristic of South Behar or Western Bengal, with which it is proposed to deal in a subsequent paper, and is quite different from that of the Delta.

The Western Sundribuns, or the swamp forest region of the 24-Pergunnahs, is covered throughout with a rather low forest for the most part unbroken, though here and there patches covered with tall grasses are interspersed, and towards the sea-face there occur at intervals considerable stretches of muddy shore sparingly wooded

with mangroves and occasionally with patches of salt-worts. At other times the sea-face ends in a line of sand hills with a true dune vegetation.

The plants characteristic of the mangrove belt, or of these sand-dunes do not extend into the central portion of our area; nor to any considerable extent do the species that are characteristic of the interior of the swamp forests. The species that throughout the Sundribun region are characteristic of the banks of creeks and rivers do, however, in a rather marked degree continue along the banks of many nullahs and along those of all the larger streams to the north and west of the Sundribun area. On this account while we have, especially to the west of the Hughli, a considerable number of species that are truly wild in our districts which are really characteristic of the drier western parts of India, we also have, especially to the east of the Hughli, a considerable number of species that are truly wild in our area which are really characteristic of the Sundribuns.

The majority of the Sundribun species, however, are peculiar and are confined to that region, and but for the accident that the district of the 24-Pergunnahs extends to the sea and so includes a portion of the Sundribuns, they would find no place in this list. The following list, corresponding to the similar list for Goghat, includes all the species that are confined to the Sundribun portion of our area: the Sundri itself, *Heritiera minor*, also *Hibiscus tortuosus*, *Brownlowia lanceolata*, *Amoora cucullata*, *Carapa obovata*, *Salacia prinoides*, *Canavalia lineata*, *Dalbergia spinosa* and *D. torta*, *Desmodium umbellatum*, *Cæsalpinia Nuga*, *Rhizophora mucronata* and *R. conjugata*, *Ceriops Roxburghiana*, *Kandelia Rheedei*, *Bruguiera gymnorhiza* and *B. parviflora*, *Lumnitzera racemosa*, *Barringtonia racemosa*, *Sonneratia acida*, *Sesuvium Portulacastrum*, *Pluchea indica*, *Launea pinnatifida*, *Ægialitis rotundifolia*, *Ægiceras majus*, *Cerbera Odollam*, *Parsonsia spiralis*, *Finlaysonia obovata*, *Sarcolobus globosus* and *S. carinatus*, *Merremia convolulacea*, *Ipomœa Pes-capræ*, *Solanum trilobatum*, *Acanthus volubilis*, *Avicennia officinalis*, *Suæda maritima*, *Arthrocnemum indicum*, *Salicornia brachiata*, *Sapium indicum*, *Nipa fruticans*, *Phœnix paludosa*, *Calamus tenuis*, *Mariscus albescens*, *Elæocharis spiralis*, *Fimbristylis halophila* and *F. subbispicata*, *Scirpus trigueter* and *S. littoralis*, *Oryza coarctata*, *Myriostachya Wightiana*, *Nephrodium aridum*. There are also a few species that are only wild in our area because they occur as epiphytes on trees in the Western Sundribun forests, such as *Hoya parasitica*, *Dendrobium anceps* and *D. Pierardi*, *Luisia brachystachys*, *Sarcanthus insectifer*, *Polypodium*

adnascens and *Vittaria elongata*. These, however, are in no way distinctive of the Sundribuns; their presence is due to the fact that it is only in the Sundribun part of our area that the forest conditions suitable for their growth are really to be found. A full account of the Sundribun flora will be found in Vol. II of these Records.

The rest of the species included in the list belong to four distinct groups —(1) Species that are common to the Gangetic delta north of the Sundribuns and to the Sundribuns; (2) Species that are common to the Gangetic delta and Western Bengal, but that do not go into the Sundribuns; (3) Species that are neither to be found in the Sundribun forests nor in Western Bengal or beyond; and (4) a residuum of species that are cultivated or are manifestly introduced plants

The species of the first group include plants that have either been left behind as the conditions of our districts became altered from their former swamp forest state, or that have, under the influence of the tides which affect the various rivers and creeks, invaded our area from the Sundribuns. They, however, include a few that on the other hand have obviously invaded the Sundribuns from the north; these in some cases at least are common to Western Bengal and to the deltaic area. Taking first the plants of this latter sub-group we find that they include *Naravelia zeylanica, Crataeva religiosa, Capparis sepiaria, Flacourtia sepiaria, Tamarix gallica, Vitis quadrangularis, Vitis trifolia, Allophylus Cobbe, Odina Wodier, Crotalaria Saltiana, C. retusa* and *C. verrucosa, Derris scandens, Flemingia congesta, Caesalpinia Bonducella, Cassia Fistula* and *C. Sophera, Acacia tomentosa* and *A. concinna, Barringtonia acutangula, Zehneria umbellata, Randia dumetorum, Vangueria spinosa, Ixora parviflora, Wedelia calendulacea, Diospyros Embryopteris, Hemidesmus indicus, Calotropis gigantea, Dregea volubilis, Cordia Myxa, Ipomœa paniculata, Ipomœa sepiaria, Cuscuta reflexa, Hygrophila phlomoides, Lippia nodiflora, Vitex trifolia* and *V. Negundo Clerodendron Siphonanthus, Alternanthera sessilis, Aristolochia indica, Cassytha filiformis, Loranthus Scurrula, L. longiflorus* and *L. globosus, Viscum monoicum, Bridelia stipularis, Breynia rhamnoides, Croton oblongifolius* and *C. caudatus, Mallotus repandus, Streblus asper, Ficus retusa, Saccolabium papillosum, Aneilema nudiflorum, Pandanus fœtidus, Typha elephantina* and *T. angustata, Cryptocoryne ciliata, Juncellus inundatus, Cyperus malaccensis* and *C. exaltatus, Fimbristylis ferruginea, Scirpus grossus* and *S. articulatus, Panicum repens, Oryza sativa, Saccharum spontaneum,*

Sporobolus tremulus Phragmites Karka, Ceratopteris thalictroides, Polypodium quercifolium, P. adnascens and *P. irioides.* The species in this list are exclusively plants that have extended into the Sundribuns and are established in the swamp-forests or at the sea-face. One or two of the species, such as *Cordia Myxa* and *Diospyros Embryopteris* may be plants that were originally deliberately introduced and that have persisted in abandoned clearings; all are, however, truly wild species in the Sundribun region. The species that occur as weeds or cultivated plants in existing Sundribun clearings are here dealt with along with the other species of the Lower Gangetic plain.

The species that extend northward into the Central Bengal rice-plain from the Sundribuns, especially along river banks, are less numerous. They include *Hibiscus tiliaceus, Thespesia populnea, Aphania Danura, Erythrina indica, Canavalia turgida, Phaseolus adenanthus, Vigna luteola, Pongamia glabra, Derris uliginosa, Sonneratia apetala, Morinda bracteata, Blumea amplectens, Sphæranthus africanus, Wedelia scandens, Azima tetracantha, Pentatropis microphylla, Tylophora tenuis, Stictocardia tiliæfolia, Acanthus ilicifolius, Premna integrifolia, Clerodendron inerme, Psilotrichum ferrugineum, Agyneia bacciformis, Trewia nudiflora, Excoecaria Agallocha, Ficus Rumphii, Crinum asiaticum, Alpinia Allughas, Flagellaria indica, Pandanus fascicularis, Ruppia rostellata, Fycreus polystachyus, Cyperus scariosus, Scirpus triqueter* var., *Paspalum distichum, Zoysia pungens, Acrostichum palustre and A. aureum.*

Turning now to the species that are common to Northern Bengal or to Western Bengal, of which the somewhat outlying Goghat sub-division of the Hughli district is an integral portion, or to the drier parts of India further west still, and to the deltaic alluvial portion of our area, but that do not enter the Sundribuns though in many cases they extend eastward to Indo-China and Malaya, we find that we have to deal with a considerable list, though it may be remarked that a remarkable proportion of these are species recorded as occurring near Serampore or Calcutta by Roxburgh, Carey, and Voigt, but not seen from our districts, except from Goghat, and by no means in all cases from that sub-division, since 1845. For this there are two possible explanations. In some cases it is certain that Voigt's "Serampore" plants were brought in by native collectors who probably went sufficiently far west in their journeys to reach the drier, and though still practically level, yet non-alluvial tract just south of Goghat. In other cases the species were collected

at or near Serampore, not impossibly even in Dr. Carey's garden, but were only casuals in our area, accidentally sown with the seeds, or brought in the soil about the roots, of purposely introduced species. This remark applies equally to a very considerable number of species seen by the writer, some indeed of these being species not met with either by Roxburgh or by Voigt. In the list now given all species of the kind are marked with an asterisk. The list is as follows:—

**Nigella sativa*, *Ranunculus sceleratus*, *Cocculus villosus*, *Tinospora tomentosa* and *T. cordifolia*, *Tiliacora racemosa*, *Stephania hernandifolia*, *Fumaria parviflora*, *Nasturtium palustre* and *N. indicum*, **Cardamine debilis*, *Cochlearia flava*, **Capsella Bursa-Pastoris*, *Cleome viscosa*, *Gynandropsis pentaphylla*, *Capparis horrida* and **C. zeylanica*, *Ionidium suffruticosum*, *Flacourtia cupida*, *Polygala chinensis*, **Saponaria Vaccaria*, **Stellaria media*, **Spergula pentandra*, *Polycarpon Loeflingiæ*, *Portulaca oleracea*, and *P. quadrifida*, *Tamarix dioica*, *Bergia verticillata* and *B. ammannioides*, *Sida veronicæfolia*, *S. acuta*, *S. cordifolia*, *S. rhombifolia* and *S. rhomboidea*, *Urena lobata* and *U. sinuata*, *Abutilon indicum* and *A. hirtum*, *Hibiscus ficulneus*, **H. tetraphyllus*, *H. vitifolius*, **H. pandurifórmis*, **H. hirtus* and **H. Abelmoschus*, *Bombax malabaricum*, *Helicteres Isora*, *Pentapetes phœnicea*, *Melochia corchorifolia*, *Waltheria indica*, **Grewia asiatica*, **G. polygama*, *G. lævigata*, **G. multiflora* and *G. hirsuta*, *Triumfetta rhomboidea*, *Corchorus acutangulus*, **C. fascicularis*, and **C. triocularis*, **Hiptage Madiblota*, *Tribulus cistoides* and *T. terrestris*, *Oxalis corniculata*, *Biophytum sensitivum*, **Acronychia laurifolia*, *Glycosmis pentaphylla*, *Clausena heptaphylla*, **Feronia elephantum*, *Ægle Marmelos*, **Garuga pinnata*, **Melia Azadirachta*, **Amoora Rohituka*, *Cedrela Toona*, **Olax phœnicarpa*, *Zizyphus Œnoplia*, **Gouania leptostachya*, *Vitis latifolia*, *V. adnata*, **V. lanata*, *V. repanda*, **V. indica*, *V. pedata* and **V. elongata*, *Leea macrophylla*, *L. crispa*, *L. robusta*, *L. aequata* and *L. sambucina*, *Cardiospermum Halicacabum*, **Erioglossum edule*, *Vicia hirsuta*, **Lathyrus Aphaca*, *Abrus precatorius*, **Crotalaria quinquefolia*, **C. laburnifolia*, **C. medicaginea*, **C. alata*, **C. sericea*, *C. mysorensis*, **C. calycina*, *C. prostrata* and *C. aciculáris*, *Cylista scariosa*, *Rhynchosia rufescens*, *R. viscosa*, *R. sericea*, *Atylosia scarabæoides*, *Phaseolus trilobus* and *P. sublobatus*, *Vigna pilosa*, *Teramnus labialis* and *T. debilis*, *Canavalia virosa*, *Mucuna pruriens*, **Butea frondosa*, *Sesbania aculeata* and *S. uliginosa*, *Tephrosia Hookeriana* and *T. purpurea*,

Dalbergia Sissoo, **D. lanceolaria* and **D. latifolia*, *Melilotus indica* and **M. alba*, **Trigonella corniculata*, *Smithia sensitiva*, *Uraria picta* and *U. lagopoides*, **Lourea vespertilionis*, *Desmodium triflorum*, *D. diffusum*, **D. pulchellum*, *D. Cephalotes*, *D. polycarpum*, *D. gangeticum* and *D. gyrans*, *Alysicarpus vaginalis*, *A. bupleurifolius* and *A. rugosus*, *Psoralea corylifolia*, *Indigofera linifolia*, *I. trifoliata*, *I. viscosa* and **I. trita*, **Cassia auriculata*, *C. Tora*, and **C. mimosoides*, **Bauhinia racemosa*, **Cæsalpinia Sappan* and **C. sepiaria*, *Mimosa rubricaulis*, *Acacia Suma*, *A. catechuoides*, **A. Farnesiana* and **A. arabica*, *Kalanchoe laciniata*, **Eugenia caryophyllifolia*, *Ammannia rotundifolia*, *A. peploides*, *A. pygmæa*, *A. pentandra*, *A. baccifera*, and *A. multiflora*, **Woodfordia floribunda*, *Jussiæa suffruticosa*, *Ludwigia parviflora*, *Trichosanthes cucumerina* and *T. palmata*, *Gymnopetalum cochinchinense*, *Luffa graveolens*, and *L. amara*, *Momordica dioica* and *M. cochinchinensis*, *Cucumis trigonus*, *Cephalandra indica*, *Mukia scabrella*, *Bryonia laciniosa*, *Trianthema monogynum*, *Mollugo stricta*, *M. Spergula*, and *M. hirta*, *Hydrocotyle rotundifolia* and *H. asiatica*, *Œnanthe stolonifera* and *Œ. benghalensis*, *Seseli indicum*, *Alangium Lamarckii*, **Adina cordifolia*, *Stephegyne parvifolia*, *Dentella repens*, *Oldenlandia crystallina*, *O. diffusa*, *O. corymbosa*, and *O. paniculata*, **Randia uliginosa*, *Hyptianthera stricta*, *Pavetta indica*, **Coffea bengalensis*, *Ixora undulata*, *Pæderia fœtida*, **Knoxia corymbosa*, *Spermacoca hispida*, **Centrantherum anthelminticum*, *Vernonia cinerea*, *Elephantopus scaber*, *Adenostemma viscosum*, *Grangea maderaspatana*, *Blumea bifoliata*, *B. Wightiana*, *B. glomerata*, *B. lacera*, *B. laciniata* and *B. membranacea*, *Laggera flava* and *L. aurita*, *Sphæranthus indicus*, *Athroisma laciniatum*, *Gnaphalium luteo-album* and *G. indicum*, *Cæsulia axillaris*, *Emilia sonchifolia*, *Xanthium strumarium*, *Eclipta alba*, **Spilanthes Acmella*, **Galinsoga parviflora*, *Cotula hemispherica*, *Centipeda orbicularis*, *Cnicus arvensis*, *Crepis japonica* and *C. acaulis*, *Sonchus asper*, **S. oleraceus* and **S. arvensis*, *Launea asplenifolia*, **Lobelia trigona*, *Sphenoclea zeylanica*, *Wahlenbergia gracilis*, *Stylidium tenellum*, **Androsace saxifragæfolia*, **Anagallis arvensis*, *Ardisia humilis*, *Diospyros cordifolia*, *Jasminum pubescens* and **J. elongatum*, **Carissa spinarum*, *Rauwolfia serpentina*, **Alstonia scholaris*, *Vallaris Heynei*, *Ichnocarpus frutescens*, *Cryptolepis Buchanani*, *Oxystelma esculentum*, *Calotropis gigantea*, *Cynanchum Callialata*, *Dæmia extensa*, **Sarcostemma brevistigma*, *Gymnema hirsutum*, *Pergularia pallida* and **P. minor*, *Tylophora asthmatica*, *Exacum*

tetragonum and *E. pedunculatum*, *Erythræa Roxburghii*, *Hoppea dichotoma*, *Canscora diffusa* and *C. decussata*, **Enicostema littorale*, *Hydrolea zeylanica*, **Ehretia lævis*, *Heliotropium strigosum* and *H. indicum*, *Coldenia procumbens*, *Cynoglossum lanceolatum*, *Trichodesma indicum* and **T. zeylanicum*, **Cuscuta chinensis*, **C. capitata* and **C. europæa*, *Evolvulus alsinoides*, **Hewittia bicolor*, *Merremia vitifolia*, **Merremia tridentata*, **M. hastata*, and *M. emarginata*, **Ipomœa hispida*, *I. Pes-tigridis*, and *I. obscura*, *Calonyction Bona-nox*, **Rivea hypocrateriformis*, *Argyreia speciosa* and *A. argentea*, *Lettsomia strigosa*, *Solanum verbascifolium*, *S. nigrum*, *S. ferox*, *S. torvum*, *S. indicum* and *S. xanthocarpum*, *Physalis minima*, **Withania somnifera*, *Celsia coromandeliana*, *Linaria ramosissima* *Mazus rugosus*, *Lindenbergia urticifolia*, **Limnophila Roxburghii*, *L. conferta*, *L. diffusa*, *L. heterophylla*, *L. gratissima*, *L. racemosa* and *L. gratioloides*, *Herpestis Monnieria* and **H. Hamiltonii*, *Dopatrium junceum*, **Torenia cordifolia* and **T. asiatica*, *Vandellia crustacea*, *V. multiflora*, *V. pedunculata*, *V. angustifolia*, and *V. pyxidaria*, *Ilysanthes parviflora*, **I. hyssopoides* and *I. rotundifolia*, *Bonnaya brachiata*, *B. veronicæfolia*, *B. tenuifolia* and **B. oppositifolia*, **Veronica Anagallis* and *V. agrestis*, *Centranthera hispida* and *C. humifusa*, **Æginetia pedunculata* *Orobanche indica*, **Utricularia racemosa* and *U. bifida*, **Thunbergia grandiflora*, *Nelsonia campestris*, *Ebermaiera glutinosa*, *Cardanthera triflora*, *Hygrophila polysperma*, *H. quadrivalvis* and *H. spinosa*, *Ruellia prostrata*, *Hemigraphis hirta*, *Phaylopsis parviflora*, *Andrographis paniculata*, **Barleria Prionitis* and *B. cristata*, *Asystasia gangetica*, *Ecbolium Linneanum*, *Justicia Gendarussa*, *J. quinquangularis* and *J. simplex*, *Adhatoda Vasica*, *Peristrophe bicalyculata*, *Rungia parviflora*, *Dicliptera Roxburghiana*, *Verbena officinalis*, *Callicarpa macrophylla* and *C. longifolia*, *Clerodendron infortunatum*, **Ocimum adscendens*, *Pogostemon plectranthoides*, *Dysophylla verticillata*, *Anisomeles ovata*, **Leonurus sibiricus*, *Leucas aspera*, *L. linifolia*, *L. Cephalotes* and *L. procumbens*, **Leonotis nepetifolia*, *Salvia plebeja*, *Boerhaavia repens*, **Pisonia aculeata*, *Deeringia celosioides*, *Digera arvensis*, *Amarantus spinosus*, *A. mangostanus*, *A. fasciatus*, *A. viridis*, *A. polygamus* and *A. tenuifolius*, **Pupalia atropurpurea*, *Ærua lanata* and **Æ. scandens*, *Achyranthes aspera*, *Chenopodium album*, *Polygonum plebejum*, **P. lapathifolium*, **P. tomentosum*, **P. lanigerum*, *P. barbatum*, *P. orientale*, *P. glabrum*, *P. serrulatum*, *P. Hydropiper*, and *P. flaccidum*, *Rumex maritimus* and *R. dentatus*, **Piper longum*, *Litsæa sebifera* and *L. polyantha*,

**Euphorbia antiquorum*, **E. neriifolia*, **E. Nivulia*, *E. dracunculoides*, *E. hypericifolia*, *E. pilulifera*, *E. thymifolia* and *E. microphylla*, *Bridelia tomentosa*, **Glochidion multiloculare*, *Flueggea microcarpa*, *Phyllanthus reticulatus*, **P. maderaspatensis*, *P. Urinaria*, *P. Niruri*, and *P. simplex*, *Antidesma Ghæsembhilla* and *A. diandrum*, *Chrozophora plicata*, *Gelonium multiflorum* and **G. lanceolatum*, *Baliospermum axillare*, *Acalypha indica* and *A. ciliata*, *Tragia involucrata* and **T. cannabina*, *Trema orientalis*, *Fleurya interrupta*, *Pouzolzia indica*, *Ficus bengalensis*, *F. religiosa*, *F. infectoria*, *F. hispida* and *F. glomerata*, *Pachystoma senile*, *Eulophia graminea*, *Geodorum dilatatum* and **G. purpureum*, *Vanda Roxburghii*, **Cleisostoma micranthum*, *Didymoplexis pallens*, *Pogonia plicata*, *P. juliana* and *P. carinata*, *Zeuxina sulcata*, *Habenaria digitata*, **H. commelinifolia*, *H. marginata* and *H. viridiflora*, **Hedychium coronarium*, *Curcuma aromatica*, **C. cæsia*, *C. ferruginea* and *C. rubescens*, *Costus speciosus*, *Curculigo orchioides*, *Crinum defixum* and *C. pratense*, *Dioscorea pentaphylla*, *D. bulbifera*, *D. spinosa*, *D. anguina* and *D. glabra*, *Asparagus racemosus*, *Smilax prolifera* and **S. macrophylla*, *Gloriosa superba*, **Asphodelus tenuifolius*, *Monochoria hastæfolia* and *M. vaginalis*, *Xyris paniculiflora*, *Commelina nudiflora*, *C. salicifolia*, *C. Hasskarlii*, *C. bengalensis*, *C. obliqua* and *C. suffruticosa*, *Ancilema spiratum* and *A. vaginatum*, **Cyanotis cristata* and *C. axillaris*, *Calamus viminalis*, *Typhonium trilobatum*, *T. cuspidatum* and **T. divaricatum*, *Amorphophallus bulbifer*, *Plesmonium margaritiferum*, *Alocasia fornicata*, *Colocasia nymphæifolia*, *Scindapsus officinalis*, *Lasia heterophylla*, *Alisma reniforme* and *A. oligococcum*, *Limnophyton obtusifolium*, *Sagittaria sagittifolia* and *S. guayanensis*, *Butomopsis lanceolata*, *Eriocaulon truncatum*, *E. Sieboldianum*, *E. luzulifolium*, *E. quinquangulare* and *E. trilobum*, *Scleria biflora* and *S. lithosperma*, *Kyllinga monocephala*, *K. brevifolia* and *K. triceps*, *Pycreus sanguinolentus* and *P. nitens*, *Juncellus pygmæus*, *Cyperus cespidatus*, **C. castaneus*, *C. flavidus*, *C. difformis*, *C. Haspan*, *C. niveus*, *C. compressus*, *C. aristatus*, *C. Iria*, *C. pilosus*, *C. procerus*, *C. distans*, *C. nutans*, *C. articulatus*, *C. tegetiformis*, *C. corymbosus*, **C. tegetum*, *C. rotundus*, *C. tuberosus*, *C. radiatus* and **C. platyphyllus*, *Mariscus Dregeanus*, *M. squarrosus*, *M. paniceus*, *M. Sieberianus* and *M. microcephalus*, *Eleocharis plantaginea*, *E. fistulosa*, *E. capitata* and *E. palustris*, *Fimbristylis monostachya*, *F. acuminata*, *F. schœnoides*, *F. squarrosa*, *F. dichotoma*, *F. diphylla*, *F. æstivalis*, *F. tenera*, *F. globulosa*, *F. quinqueangularis*, *F. miliacea* and *F. complanata*, *Echinolytrum*

dipsaceum, *Bulbostylis barbata*, *Lipocarpha argentea*, *Fuirena glomerata*, *Scirpus Michelianus*, *S. squarrosus*, *S. supinus*, **S. Isolepis*, *S. erectus* and *S. mucronatus*, **Pennisetum setosum*, *Setaria glauca*, *S. intermedia* and *S. verticillata*, **Isachne miliacea* *Oplismenus compositus* and *O. Burmanni*, *Axonopus cimicinus*, *Panicum flavidum*, *P. punctatum*, *P. Crus-Galli*, *P. stagninum*, *P. colonum*, *P. prostratum*, *P. javanicum*. *P. setigerum*, *P. distachyum*, *P. Kursii*, *P. myosuroides*, *P. indicum*, *P. trypheron*, *P. humile* and **P. trigonum*, *Digitaria sanguinalis*, *D. tenuiflora* and *D. puberula*, *Paspalum scrobiculatum*, *Eriochloa polystachya*, *Perotis latifolia*, **Dimeria ornithopodi*, *Imperata arundinacea*, **Saccharum arundinaceum*, *Pollinia argentea*, *Manisuris granularis*, *Rottboellia compressa*, *R protensa* and *R. exaltata*, *Manisthea lævis*, *Apluda varia*, **Ischæmum aristatum*, *I. rugosum*, **I. semisagittatum*, **I. conjugatum* and **I. ciliare*, **Arthraxon microphyllus*, *Andropogon intermedius*, **A. halepensis*, **A. squarrosus*, *A. aciculatus*, **A. contortus*, *A. caricosus* and *A. annulatus*, **Pseudanthistiria heteroclita*, **Anthistiria ciliata* and **A gigantea*, *Polytoca barbata*, *Coix Lachryma-Jobi* and **C. gigantea*, *Sporobolus diandr* and *S. tremulus*, *Arundo Donax*, **Eragrostis aspera*, *E. tenella*, *E. interrupta* *E. amabilis*, *E gangetica*, *E. stenophylla*, *E. major*, *E. minor*, *E tremula*, *E. pilosa* and *E cynosuroides*, **Diplachne fusca*, *Leptochloa filiformis* and *L. chinensis*, *Microchloa setacea*, *Cynodon dactylon*, *Chloris barbata*, *Eleusine indica* and *E. ægyptiaca*, **Dinrillia multiflora*, *Adiantum lunulatum* and **A. caudatum*, *Pteris longifolia*, *Neprodium unitum* and *N. molle*, **Nephrolepis cordifolia*, *Polypodium proliferum*, **Drymoglossum piloselloides*, *Hemionitis arifolia*, **Lygodium flexuosum* and *L. japonicum*, *Ophioglossum reticulatum*, *Helminthostachys zeylanica*, *Marsilea quadrifoliata* and *M. minuta*, **Lycopodium Phlegmaria*, *Selaginella proniflora*, *Fissidens bengalensis*, *Calymperes tenerum*, *Barbula orientalis* and *B. gangetica*, *Splachnobryum indicum*, *Physcomitrium cyathocarpum*, *Cyathodium albonitens*, and possibly *Athalamia pinguis*.

In the foregoing list are included all the species of drier places that occur in Northern or Western Bengal or in parts of India further west than West Bengal even when the species has not yet been collected there. But besides these all the species of rice-fields and marshy places which have an erect habit are also enumerated. There are, however, a number of the submerged or floating aquatic plants so characteristic of our area that also occur in rice-fields, ponds and marshes throughout the regions to the west or north of our districts.

These it seems more satisfactory to enumerate separately; they are therefore given in the following list:—*Nymphæa Lotus*, *N. rubra* and *N. stellata*. *Nelumbium speciosum*, *Hydrocera triflora*, *Æschynomena indica* and *Æ. aspera*, *Neptunia oleraçea*, *Aldrovanda vesiculosa*, *Myriophyllum tuberculatum* and *M. indicum*, *Jussiaea repens*, *Trapa bispinosa*, *Enhydra fluctuans*, *Limnanthemum cristatum* and *L. indicum*, *Ipomæa reptans*, *Utricularia stellaris*, *U. flexuosa*, *U. exoleta* and **U. reticulata*, *Ceratophyllum demersum* *Hydrilla verticillata*, *Lagarosiphon Roxburghii*, *Vallisneria spiralis*, *Blyxa Roxburghii*, *Hydrocharis cellulosa*, *Ottelia alismoides*, *Pistia Stratiotes*, *Cryptocoryne spiralis*, *Lemna paucicostata*, *L. trisulca*, *L. polyrrhiza* and *L. oligorrhiza*, *Wolffia arrhiza* and *W. microscopica*, *Aponogeton monostachya*, *A. echinatum* and *A. crispum*, *Potomogeton indicus*, *P. crispus* and *P. pectinatus*, *Najas indica*, *N. minor*, *N. foveolata* and *N. graminea*, *Eriocaulon Capillus-naiadis*, *Cyperus Cephalotes*, *Chamæraphis spinescens* *Panicum Myurus*, *P. interruptum* and *P. proliferum*, *Leersia hexandra*, *Hygrorhiza aristata*, *Coix aquatica*, *Salvinia cucullata*, *Azolla pinnata* *Isoetes coromandeliana*.

The species that are not to be found to the west of the Gangetic plain are strikingly few in number. Of those that are either plants of dry places or, if they occur in or near ponds or marshes, are erect we find the following:—*Brassica agrestis*, **Spondias mangifera*, *Rhynchosia bracteata*, **Erythrina ovalifolia*, *Sesbania paludosa*, *Ammannia salicifolia*, *Blumea amplectens*, *Bothriospermum tenellum*, *Cressa cretica*, *Merremia chryseides*, *Operculina Turpethum*, *Limnophila erecta*, *Lantana indica*, *Lippia geminata*, *Litsæa salicifolia*, *Acalypha fallax*, *Pilea microphylla*, *Ficus heterophylla*, *Commelina appendiculata*, *Typhonium Schottii*, **Alocasia cucullata*, **Cyperus digitatus*, *Mariscus ferax*, *Scirpus affinis*, **Saccharum fuscum*, *Pollinia conjugata*. The only floating or submerged aquatic species which do not extend westward from our districts are *Euryale ferox* and *Chamæraphis spinescens*.

In considering the residual species it is most convenient to deal separately with the staple crops grown in the districts; with the species that are systematically planted or that have been purposely introduced for various reasons; and finally with the species that have been accidentally or inadvertently introduced.

The crops cultivated are largely Indian, though a fair proportion are originally of foreign origin. They include *Brassica juncea*, Rai, probably originally Chinese, *Brassica Rapa*, the Turnip, probably originally Central Asiatic, *Brassica Sarson*, the Indian Colza, prob-

ably originally Indian; *Brassica dichotoma*, Indian Rape, probably originally Central Asian; *Brassica oleracea*, the Cabbage, originally Mediterranean; *Eruca sativa*, possibly originally Central Asian; *Lepidium sativum*, originally Mediterranean; *Raphanus sativus*, the Radish, originally Central Asian; *Hibiscus cannabinus*, native; *Hibiscus Sabdariffa*, originally African; *Gossypium herbaceum*, native; *Abroma augusta*, Indo-Chinese; *Corchorus olitorius*, Jute, native; *Corchorus capsularis*, Jute, Chinese; *Linum usitatissimum*, Flax, Mediterranean; *Cicer arietinum*, Chick-pea, Mediterranean; *Vicia sativa*, Tare, Mediterranean; *Lens esculenta*, Lentil, Mediterranean; *Lathyrus sativus*, Vetch, Mediterranean; *Pisum sativum*, Pea, Mediterranean; *Pisum arvense*, Field Pea, Western Asiatic; *Crotalaria juncea*, Sunn, native; *Cajanus indicus*, Pigeon Pea, African; *Phaseolus lunatus*, Lima Bean, S. American; *Phaseolus vulgaris*, French Bean, Mediterranean; *Phaseolus multiflorus*, Scarlet Runner, American; *Phaseolus Mungo*, native; *Phaseolus radiatus*, native; *Vigna Catjang*, Chinese; *Packyrhizus angulatus*, American; *Dolichos Lablab*, African; *Dolichos biflorus*, native; *Psophocarpus tetragonolobus*, American; *Canavalia ensiformis*, native; *Mucuna utilis*, African; *Mucuna nivea*, native; *Sesbania cannabina*, native *Arachis hypogæa*, American; *Trigonella Fœnum-græcum*, Mediterranean; *Cyamopsis psoraloides*, African; *Trichosanthes dioica*, native; *Trichosanthes anguina*, native; *Lagenaria vulgaris*, native; *Luffa ægyptiaca*, African; *Luffa acutangula*, native; *Benincasa cerifera*, native; *Momordica Charantia*, native; *M. muricata*, native; *Cucumis Melo*, Mediterranean, *Cucumis sativus*, Mediterranean; *Citrullus vulgaris*, Mediterranean; *Cucurbita Pepo*, Mediterranean; *Cucurbita maxima*, Mediterranean; *Cucurbita moschata*, Mediterranean; *Carum Roxburghianum*, native; *Carum copticum*, native; *Fœniculum vulgare*, Mediterranean; *Peucedanum Sowa*, native; *Coriandum sativum*, Mediterranean; *Daucus Carota*, Mediterranean; *Helianthus tuberosus*, S. American; *Chrysanthemum coronarium*, Chinese; *Lactuca sativa*, Mediterranean; *Carthamus tinctorius*, native; *Lycopersicum esculentum*, American; *Solanum tuberosum*, American; *Solanum Melongena*, native; *Capsicum annuum*, American; *Capsicum frutescens*, American; *Nicotiana rustica*, American; *Nicotiana Tabacum*, American; *Sesamum indicum*, Western Asiatic; *Amarantus gangeticus*, native; *Amarantus tristis*, native; *Amarantus Blitum*, native; *Beta vulgaris*, Central Asian; *Spinacea oleracea*, African; *Basella rubra*, native; *Rumex vesicarius*, African; *Piper Chaba*, Malayan; *Piper Betle*, Malayan; *Piper nigrum*, native; *Ricinus communis*, African; *Bœhmeria nivea*, Chinese; *Kæmpferia Galanga*, Malayan; *Kæmpferia*

rotunda, Indo-Chinese ; *Curcuma Zedoaria*, native ; *Curcuma longa*, native ; *Curcuma Amada*, native ; *Zingiber Zerumbet*, Indo-Chinese ; *Zingiber Casumunar*, native ; *Zingiber officinale*, native ; *Maranta arundinacea*, American ; *Musa sapientum*, native ; *Sanseviera Roxburghiana*, doubtfully native ; *S. trifasciata*, African ; *Dioscorea fasciculata*, native ; *Dioscorea alata*, native ; *Allium Ascalonicum*, Mediterranean ; *Allium Cepa*, Mediterranean ; *Allium tuberosum*, native ; *Allium Ampeloprasum*, Mediterranean ; *Allium sativum*, Mediterranean ; *Amorphophallus campanulatus*, native ; *Alocasia indica*, native ; *Alocasia macrorrhiza*, Indo-Chinese ; *Colocasia antiquorum*, native ; *Pennisetum typhoideum*, African ; *Setaria italica*, Mediterranean ; *Panicum miliaceum*, native ; *Panicum miliare*, native ; *Panicum maximum*, African ; *Oryza sativa*, native ; *Saccharum Sara*, native ; *Saccharum officinarum*, native ; *Andropogon Schœnanthus*, native ; *Andropogon Nardus*, native ; *Andropogon Sorghum*, native ; *Eleusine Coracana*, native ; *Triticum vulgare*, Central Asiatic ; *Zea Mays*, American.

Of the crops grown in our districts about 50 are almost certainly natives of India itself, but of these four-fifths are crops of the monsoon season, only one-fifth are cold-weather crops. On the other hand, 35 crops or so are natives of Central or Western Asia or of the Mediterranean region ; with hardly an exception these are crops of great antiquity in India and from the situation of their native countries it is almost certain that they were originally brought with them to India by early invaders from the north-west. In this case, with, perhaps, one or two exceptions, the crops are crops of the cold weather only. About 15 of our crops are of African origin and the majority of these are introductions of later date, many of them not going beyond the period of Mussalman invasions. A few of these African crops, however, like *Guizotia abyssinica*, are very interesting because their cultivation is as old as, or older than, that of the crops probably introduced by Aryan invaders, and because their use is practically confined to peoples of Central Indian affinity. Of these African crops two-thirds are monsoon crops. Crops introduced from America, and therefore mostly, if not wholly, introductions that date from the discovery of the New World, are almost as numerous as the African ones. In this case, however, two-thirds of the crops are cold season ones. Some of the American crops like the Potato, and various vegetables, have obviously been introduced by way of Europe. Others, however, like the Tobaccos, the Chillies and Maize would appear to have come by the Eastern route, and perhaps, by way of China and independent of, if not prior to, European intercourse with America. About a dozen crops have clearly come to India

by eastern and north-eastern channels from Malaya, Indo-China or China. Of these, nearly one-half are Chinese and all of these are cold-weather crops, the rest from Indo-China or Malaya are crops of the rainy season.

Of the crops about 70 consist of vegetables of various kinds, half of these being rains' crops and half of them cold-weather ones. Of the remaining 50 crops, 12 are cereals, as many are pulses, 11 are fibre plants, 9 are oil-seed crops, the rest are food accessories, dyes, etc. Of the cereals three-fourths are rains' crops; of the pulses two-thirds are cold-weather crops; the fibre plants are almost all crops of the rainy season.

In considering the species that are not staple crops but that have nevertheless been purposely introduced or planted for various reasons we may most conveniently commence by considering those shrubs and trees that are natives of South-Eastern Asia or Polynesia. A very considerable number of these only occur as planted trees or shrubs—others, however, are frequently self-sown and still others are so thoroughly established that they may be looked on as naturalized in our area. These last in the following list are marked by an asterisk:—* *Dillenia indica*, *Michelia Champaca*, *Artabotrys odoratissimus*, *Cananga odorata*, *Polyalthia longifolia*, *P. cerasoides* and * *P. suberosa*, *Calophyllum inophyllum*, *Garcinia Xanthochymus*, *Hibiscus mutabilis*, *Eriodendron anfractuosum*, *Sterculia alata*, *S. colorata* and *S. fœtida*, *Kleinhovia Hospita*, *Pterosperum acerifolium*, * *Averrhoa Carambola* and **A. Bilimbi*, * *Murraya exotica* and *M. Kœnigii*, *Citrus decumana* and *C. medica*, *Elæodendron glaucum*, *Zizyphus Jujuba*, *Sapindus trifoliatus* and *S. Mukorossi*, *Nephelium Longana*, *Mangifera indica*, *Spondias dulcis*, *Moringa pterygosperma*, *Sesbania grandiflora*, *Cassia glauca* and *C. siamea*, * *Bauhinia acuminata*, *B. tomentosa*, *B. variegata* and * *B. purpurea*, * *Saraca indica*, *Cæsalpinia pulcherrima*, *Parkia biglandulosa*, *Albizzia Lebbek*, *A. procera* and *A. lucida*, *Rosa involucrata*, *Terminalia Catappa*, *Quisqualis indica*, *Eugenia malaccensis*, *E. javanica*, *E. Jambos*, *E. æquea*, and *E. Jambolana*, *Lagerstræmia indica* and *L. Flos-Reginæ*, *Panax fruticosum*, * *Anthocephalus Cadamba*, *Ixora coccinea*, * *Canthium parvifolium*, * *Mimusops Elengi*, *Diospyros discolor*, *Jasminum auriculatum*, *Nyctanthes Arbor-tristis*, * *Carissa Carandas*, *Kopsia fruticosa*, * *Alstonia macrophylla*, * *Tabernæmontana coronaria*, *Wrightia coccinea*, *Vallaris Pergulana*, *Beaumontia grandiflora*, *Porana paniculata*, *Ipomœa Nil*, *Ipomœa Learii*, *Ipomœa pulchella*, * *Oroxylum indicum*, * *Millingtonia hortensis*, * *Callicarpa cana*, *Tectona*

grandis, *Gmelina asiatica*, *Premna esculenta*, *Cinnamomum Tamala*, *Bischofia javanica*, *Phyllanthus Emblica* and *P. distichus*, * *Putranjiva Roxburghii*, * *Aleurites moluccana*, * *Croton Tiglium*, *Codiæum variegatum*, *Mallotus philippinensis*, * *Morus indica*, *Artocarpus integrifolia* and *A. Lakoocha*, * *Ficus comosa*, *Casuarina equisetifolia*, *Corypha umbraculifera*, *C. Talliera* and *C. elata*, *Phœnix sylvestris*, *Cocos nucifera*, *Areca Catechu*, *Bambusa Tulda*, *B. vulgaris*, *B. Balcooa* and * *B. arundinacea*.

Perhaps the most striking facts in connection with this list are that, although the species as a class belong to plants that one would expect to be readily naturalized in our area, hardly more than 20 per cent. readily reproduce themselves without human assistance; and that in spite of what is so often said to the contrary, over 50 per cent. of these species must have been introduced on purely æsthetic grounds, as there is no obvious economic quality associated with fully one-half of the plants in this list. About 25 per cent. have edible fruits or foliage, other 25 per cent. have useful timbers or are valuable as hedge-plants.

Herbaceous species, natives of South-Eastern Asia that have been deliberately introduced, include the following:—* *Wissadula rostrata*, *Hibiscus radiatus*, * *Impatiens Balsamina*, * *Clitoria Ternatea*, * *Bryophyllum calycinum*, * *Plumbago rosea* and * *P. zeylanica*, * *Datura fastuosa*, * *Torenia Fournieri*, *Crossandra undulæfolia*, *Justicia Betonica*, *Rhinacanthus communis*, * *Peristrophe tinctoria*, * *Ocimum sanctum*, * *O. gratissimum* and * *O. Basilicum*, *Coleus aromaticus* and *C. scutellarioides*, * *Celosia argentea* and * *C. cristata*, * *Globba sessiliflora*, * *Canna indica*, *Crinum latifolium*, * *Typhonium Roxburghii*, * *Selaginella tenera*. The high proportion of species in this list that readily reproduce themselves means very little, because, as regards species of this kind, only those have been admitted into the systematic census which show a tendency to perpetuate themselves in our districts, or which are of economic interest or both.

The number of species purposely introduced from China or Japan is not very great; it includes the following, those that show a tendency to naturalise themselves being again distinguished by an asterisk; in this case it is not necessary to distinguish herbaceous from woody plants:—* *Hibiscus Manihot* and *H. Rosa-sinensis*, * *Triphasia Aurantiola*, *Nephelium Litchi*, *Rosa indica*, *Eriobotrya japonica*, *Gardenia florida*, *Ixora stricta*, *Diospyros Kaki*, *Nerium odorum*, * *Clerodendron fragrans*, *Cinnamomum Camphora*, * *Sapium sebiferum*, * *Broussonetia papyrifera*, *Ficus pumila*, *Thuja orientalis*,

Cycas revoluta, Belamcanda chinensis, Hemerocallis fulva, Bambusa fnana. Not very many of these Chinese species, which are all very amiliar plants in Indian gardens and shrubberies, tend to reproduce themselves unaided.

As might be expected, the number of perennial species, introduced from Central or Western Asia or the Mediterranean littoral is remarkably small. A considerable number of herbaceous species from these regions are included among the plants sown annually during the cold weather, but very few of them appear as self-sown species and none of them do so regularly. The list is as follows:—**Alyssum maritimum*, very occasionally spontaneous; *Hibiscus syriacus; Melia Azedarach*, not common; *Vitis vinifera*, very occasionally planted and practically only as a curiosity; *Parkinsonia aculeata; Rosa centifolia; Lawsonia alba*, as a hedge but thrives very indifferently; *Silybum Marianum*, practically only in European gardens as an annual; **Jasminum Sambac;* **Cannabis sativa, Cupressus sempervirens.*

The number of purposely introduced African species is not remarkably large. It includes the following:—*Hibiscus schizopetalus, Sesbania ægyptiaca, Bauhinia monandra,* **Tamarindus indica, Poinciana regia, Colvillea racemosa, Punica Granatum, Vangueria edulis, Roupellia grata, Cryptostegia grandiflora, Jacquemontia cærulea,* **Thunbergia alata, Ocimum viride, Meriandra bengalensis,* **Euphorbia Tirucalli,* * *Borassus flabellifer,* * *Pennisetum borbonicum* * *Panicum muticum,* * *Panicum flavescens.* The percentage of species in the list that have established themselves as an integral part of the flora of the Gangetic delta is unexpectedly small.

When now we turn to the American species that have been deliberately introduced we find a quite different state of affairs. The list is here sufficiently long to render it advisable to separate the herbaceous species from the trees and shrubs, which are as follows:—* *Anona squamosa* and * *A. reticulata,* * *Bixa Orellana,* * *Malvastrum tricuspidatum* and * *M. spicatum,* * *Guazuma tomentosa,* * *Malpighia coccifera, Blighia sapida, Swietenia Mahagoni* and *S. macrophylla,* * *Anacardium occidentale,* * *Cassia bicapsularis, Cæsalpinia coriaria,* * *Desmanthus virgatus,* * *Leucæna glauca,* * *Pithecolobium dulce,* * *Enterolobium Saman,* * *Psidium Guyava,* **Carica Papaya,* * *Cereus pterogonus,* * *Opuntia Dillenii,* * *Hamelia patens, Achras Sapota, Allamanda cathartica,* * *Thevetia neriifolia, Plumeria acutifolia, Cordia Sebestena,* **Lantana Camara,* **Duranta Plumieri, Bougainvillea glabra* and *B. spectabilis, Antigonon leptopus,* * *Pedilanthus tithymaloides,* * *Jatropha multifida* and * *J. Curcas,* * *Agave Vera Cruz.*

Over 60 per cent. of the species in this list, which is largely composed of plants introduced for economic reasons, have already become so completely naturalised as to form an integral portion of the wild vegetation of our districts In some cases it will be seen the species have become so familiar to the inhabitants that they have received distinct vernacular names; some of them. indeed, like the *Agave*, one species at least of which was introduced over three hundred years ago, and like *Thevetia*, which was introduced a century ago, enjoy in other parts of India, if not in our districts, the distinction and dignity of having had Sanscrit names evolved to designate them!

But if the extent to which woody species that are natives of the New World have acclimatised themselves in Lower Bengal is very striking, still more striking is the extent to which herbaceous species have accommodated themselves to our deltaic conditions. The following list of American plants that are very familiar in the Calcutta neighbourhood shows that out of 50 species, 80 per cent. have become quite naturalised:—* *Talinum patens*, * *Crotalaria Brownei* and * *C. incana*, * *Phaseolus semierectus*, * *Cassia alata*, * *Neptunia plena*, * *Turnera ulmifolia*, * *Passiflora suberosa* and * *P. fœtida*, *Eupatorium Ayapana* and *E. odoratum*, * *Hymenantherum tenuifolium*, * *Tagetes patula* and *T. erecta*, * *Zinnia pauciflora*, *Tithonia tagetiflora*—this species is not self-sown but propagates itself by its rootstocks, *Helianthus annuus* and * *H. argyrophyllus*, **Cosmos sulfureus*, **Vinca rosea*, **Asclepias Curassavica*, **Phlox Drummondi*—only occasionally self-sown, * *Merremia umbellata*, *Ipomœa purpurea* and *I. tricolor*, * *Quamoclit phœnicea* and *Q. pinnata*, * *Solanum glaucum* and * *S. sisymbriifolium*, *Physalis peruviana*, * *Petunia nyctaginiflora*—only occasionally, * *Browallia elata*, * *Martynia diandra*, * *Ruellia tuberosa*, * *Stachytarpheta indica*, * *Hyptis capitata*—only occasionally, * *Salvia coccinea*, **Mirabilis Jalapa*, * *Gomphrena globosa* * *Rivina humilis*, *Euphorbia pulcherrima*, * *E. geniculata*—only occasionally, and * *E. heterophylla*, * *Ananassa sativa*, * *Cipura paludosa*, * *Zephyranthes tubispatha*—occasionally, *Polianthes tuberosa*, * *Tradescantia discolor*—occasionally, * *Pteris cretica*.

In addition, however, to these intentionally introduced species there are a considerable number of inadvertently introduced plants in our districts. To what extent the species in our districts which are undoubtedly natives of Northern or Western Bengal belong to this category is a matter that hardly repays speculation. Some there certainly are, such as *Andropogon contortus*, *Saponaria Vaccaria*, *Cardamine debilis*, *Lathyrus Aphaca*, *Melilotus alba*, that

not only belong to this class but that only appear in our districts owing to repeated introductions, and could no more survive under the conditions prevalent during the south-west monsoon that could many of the cold-weather crops. But, as already explained, there is one point of view from which every species growing on the deltaic alluvium is an introduced species, and nothing can be learned from an examination of the plants with reference to this question that could not be better learned elsewhere and by other means. When, however, it is a question of the species known to be natives of countries other than India, a brief examination of these repays the trouble. The list includes the following:—*Argemone mexicana*, American; *Senebiera pinnatifida*, Mediterranean; *Malachra capitata*, American; *Crotalaria patula*, Indo-Chinese; *Cassia occidentalis*, American; *Mimosa pudica*, American; *Ageratum conyzoides*, American; *Xanthium spinosum*, Mediterranean; *Lagascea mollis*, American; *Synedrella nodiflora*, American; *Tridax procumbens*, American; *Evolvulus nummularifolius*, American; *Nicotiana plumbaginifolia*, American; *Herpestis chamædroides*, American; *Scoparia dulcis*, American; *Peperomia pellucida*, American; *Euphorbia graminea*, American; *Croton sparsiflorus*, American; *Jatropha gossypifolia*, American; *Typhonium inopinatum*, Indo-Chinese; *Paspalum conjugatum*, American.

Of these species one-tenth are of Mediterranean and one-tenth of Indo-Chinese origin, while four-fifths are originally American; these American species include in *Ageratum conyzoides*, *Tridax procumbens*, *Cassia occidentalis*, *Scoparia dulcis*, *Peperomia pellucida*, some of the very commonest species in the neighbourhood of Calcutta.

There is, however, another very interesting feature in connection with these introduced weeds. Their presence indicates a process that is steadily going on; year by year new species become added to the flora of the neighbourhood of Calcutta. Of the species in the list we know that *Argemone mexicana*, *Ageratum conyzoides*, *Cassia occidentalis*, *Mimosa pudica*, *Tridax procumbens* were already members of the flora in 1795. But we also know that as late as 1814 none of the others were yet introduced and naturalised. By 1845, however, *Scoparia dulcis*, *Senebiera pinnatifida*, *Lagascea mollis*, *Malachra capitata*, *Nicotiana plumbaginifolia* had all become established. By 1885 *Evolvulus nummularius*, *Crotalaria patula*, *Jatropha gossypifolia*, *Peperomia pellucida*, *Paspalum conjugatum*, *Synedrella nodiflora* and *Euphorbia graminea* had become established as members of the Calcutta flora. The period

since 1885 has seen the introduction and thorough establishment of *Xanthium spinosum*, *Typhonium inopinatum*, *Herpestis chamædroides* and *Croton sparsiflorus*.

III.—SYSTEMATIC CENSUS.

PHANEROGAMIA

THALAMIFLORÆ.

I.—RANUNCULACEÆ.

1. Naravelia DC.

* **Naravelia zeylanica** DC.; H. S. 2; B. P. 193.
v. *Chagal-bati*, *murcha*.
Hedges, thickets; everywhere.

2. Ranunculus Linn.

* **Ranunculus sceleratus** Linn.; H. S. 3; B. P. 193.
Banks of nalas and rivers; general.

3. Nigella Linn.

Nigella sativa Linn.; H. S. 4; B. P. 194.
v. *Mugréla*, *kaljira*.
A crop; also a weed in fields; native of S. Europe.

II.—DILLENIACEÆ.

4. Dillenia Linn.

Dillenia indica Linn.; B. P. 195. *D. speciosa* H. S. 18.
v. *Chalta*, *chalita*.
Planted generally; native of S. E. Asia.

III.—MAGNOLIACEÆ.

5. Michelia Linn.

Michelia Champaca Linn.; H. S. 12; B. P. 197.
v. *Champá*, *champaka*.
Planted near villages and temples; native of S. E. Asia.

IV.—ANONACEÆ.

6. Artabotrys R. Br.

Artabotrys odoratissimus R. Br.; H. S. 15; B. P. 202.
v. *Kantali-champ*.
Planted in gardens; native of S. E. Asia.

7. Cananga Rumph.

Cananga odorata H. f. & T.; B. P. 202. *Uvaria odorata* H. S. 14.
Planted in avenues; native of Malaya.

8. Polyalthia Bl.

Polyalthia longifolia Bth. & Hk. f.; B. P. 204. *Guatteria longifolia* H. S. 16.
v. *Debdáru.*
Planted, roadsides and avenues; native of S. E. Asia.

Polyalthia cerasoides Bth. & Hk. f.; B. P. 204. *Guatteria cerasoides* H. S. 16.
In village-shrubberies, occasionally; native of India.

Polyalthia suberosa Bth. & Hk. f.; B. P. 204. *Guatteria suberosa* H. S. 16.
v. *Bara cháli.*
In village-shrubberies, frequent; native of India.

9. Anona Linn.

Anona squamosa Linn.; H. S. 14; B. P. 206.
v. *Ata.*
In village-shrubberies, common; also cultivated; native of tropical America.

Anona reticulata Linn.; H. S. 14; B. P. 206.
v. *Nona.*
In village-shrubberies, self-sown, very common; also cultivated; native of tropical America.

V.—MENISPERMACEÆ.

10. Tinospora Miers.

* **Tinospora tomentosa** Miers; B P. 209. *Cocculus tomentosus* H. S. 331.
v. *Padma gulancha.*
Hedges and thickets, general, but rather rare.

* **Tinospora cordifolia** Miers; B. P. 209. *Cocculus cordifolius* H. 330.
v. *Gulancha.*
Hedges and thickets, general and common.

11. Tiliacora Colebr.

* **Tiliacora racemosa** Colebr.; B. P. 210. *Cocculus acuminatus* H. S. 331.
v. *Tiliacora, bhága lata.*
Hedges and shrubberies, general.

12. Cocculus DC.

* **Cocculus villosus** DC.; H. S. 331; B. P. 210.
v. *Huyer.*
Waste places, Hughli district, rare.

13. Stephania Lour.

* **Stephania hernandifolia** Walp.; B. P. 208. *Clypea hernandifolia* H. S. 330.
v. *Ákanádi nimukha.*
Hedges and thickets, general.

14. Cissampelos Linn.

* **Cissampelos Pareira** Linn.; B. P. 208. *C. convolvulacea* H. S. 330.
v. *Ekleja.*
Waste ground, Goghat (Western Hughli district).

VI.—NYMPHÆACEÆ.

15. Nymphæa Linn.

* **Nymphæa Lotus** Linn.; B. P. 213. *N. pubescens* H. S. 8. *N. edulis* H. S. 8.
v. *Kambal.*
Ponds and ditches, everywhere.

* **Nymphæa rubra** Roxb.; H. S. 8; B. P. 213.
v. *Rakto kambal.*
Ponds and ditches, general.

* **Nymphæa stellata** Willd.; H. S 9; B. P. 213.
v. *Nil padma.*
Ponds and ditches, general.
VAR. * **major** Voigt; H. S. 9; B. P. 213.
v. *Bara nil padma.*
Ponds and ditches, general.

16. Euryale Salisb.

* **Euryale ferox** Salisb.; H. S. 8; B. P. 214.
v *Makána.*
Ponds and jhils, 24-Pergunnahs.

17. Nelumbium Juss.

* **Nelumbium speciosum** Willd.; H. S. 9, B. P. 214.
v. *Padma.*
Ponds, everywhere.

VII.—PAPAVERACEÆ.

18. Papaver Linn.

Papaver somniferum Linn.; H S 5; B P. 215.
v. *Posto.*
In fields, Goghat (Western Hughli district).

19. Argemone Linn.

Argemone mexicana Linn.; H S 6, B. P. 216.
v *Bara shil kanta.*
Waste places, general; native of West Indies.

VIII.—FUMARIACEÆ.

20. Fumaria Linn.

* **Fumaria parviflora** Lamk; H. S. 7; B. P. 217.
v. *Ban salpha.*
A weed of cultivated ground in the cold weather, general.

IX.—CRUCIFERÆ.

21. Nasturtium R. Br.

* **Nasturtium palustre** DC.; B. P. 219.
A field weed, 24-Pergunnahs, rare.

* **Nasturtium indicum** DC.; B. P. 219. *Sinapis divaricata* H. S. 72.
A field weed, general.
VAR. * **benghalense** H. f. & T.; B. P. 219.
v. *Bil rai.*
A field weed, everywhere.

22. Cardamine Linn.

Cardamine debilis Don; B. P. 219.
A garden weed about Calcutta in cold weather, rare; native of most temperate countries.

23. Brassica Linn.

Brassica juncea H. f. & T.; B. P. 220 *Sinapis ramosa* H. S. 71.

v. *Sarisha, chanchi, jhuni.*

A field crop of cold season, sometimes also an escape. Indian mustard.

VAR. * **agrestis**; B. P. 220. *Sinapis patens* H. S. 72.

v. *Bil rai, keel rai.*

Shady places and drier fields; a rains' weed.

Brassica campestris Linn. VAR. **Rapa**. *B. Rapa* H. S. 71.

v. *Shalgám.*

Cultivated about Calcutta; the Turnip.

VAR. **Sarson**; B. P. 220.

v. *Swet rai, swet sarisha, lepo.*

A field crop of cold season. Indian Colza or Sarson crop.

Brassica Napus Linn. VAR. **dichotoma**; B. P. 221. *Sinapis dichotoma* H. S. 71.

v. *Sarisha.*

A field crop of cold season. Indian Rape or Tori crop.

Brassica oleracea Linn.; H. S. 70.

v. *Kopi.*

Cultivated especially near Calcutta. The Cabbage. The only variety with a distinctive vernacular name is the Cauliflower, *Phul kopi.*

24. Eruca Linn.

Eruca sativa Lamk; H. S. 72; B. P. 221.

v. *Swet sarisha.*

A cold-weather crop on a small scale about Hughli.

25. Cochlearia Linn.

Cochlearia Armoracia Ham.; B. P. 222.

Banks of river Hughli, very rare.

26. Alyssum Linn.

Alyssum maritimum Linn.; B. P. 222. *Koniga maritima* H. S. 68.

In gardens of Europeans in cold weather; occasionally subspontaneous on rubbish heaps towards close of rainy season; native of S. Europe.

27. Capsella Linn.

Capsella Bursa-pastoris Moench, H. S. 68; B. P. 222.

A garden weed of cold weather near Calcutta, very rare; native of most temperate countries.

28. Lepidium Linn.

Lepidium sativum Linn, H S. 70, B. P. 223.

v *Halim*

Occasionally cultivated in Hughli district, native of the Orient

29. Senebiera DC.

Senebiera pinnatifida DC, H. S. 69, B P. 223.

A weed of garden ground and waysides, very plentiful about Port Canning; native of S Europe.

30. Raphanus Linn.

Raphanus sativus Linn, H S. 72, B. P. 224.

v. *Mula*

A cold-weather crop The Radish.

A.—CAPPARIDEÆ.

31. Cleome Linn.

* **Cleome viscosa** Linn; B P. 225. *Polanisia icosandria* H S. 74.

v. *Hurhuria*

Waste places, fields, general.

32. Gynandropsis DC.

Gynandropsis pentaphylla DC, H S. 73, B. P 225.

v. *Ansarisha, sada hurhuria.*

In gardens, everywhere; also in waste places naturalised, general; cosmopolitan in the Tropics

33. Capparis Linn.

* **Capparis horrida** Linn. f, H. S. 74, B P. 226.

v. *Asaria, bagnai.*

Hedges and thickets, mostly west of river Hughli.

Capparis zeylanica Linn., B. P. 226. *C brevispina* H. S. 74.

v. *Kalu kera.*

Recorded from Serampore by Voigt; wants confirmation. The species is in the Midnapore jungles and *may* occur in the western part of the Hughli district.

* **Capparis sepiaria** Linn.; H. S. 75; B. P. 227.
v. *Kanta gur kamai.*
Hedges and thickets, everywhere; Sundribuns, sea-face.

34. Cratæva Linn.

Cratæva religiosa Forst.; B. P. 227. *C. Roxburghii* H. S. 74.
v. *Tikta shak.*
Village gardens and shrubberies, planted; native of S. E. Asia.

XI.—VIOLACEÆ.

35. Ionidium Vent.

* **Ionidium suffruticosum** Ging.; H. S. 77; B. P. 228.
v. *Nunbora.*
Open grassy places, on drier ground, general.

XII.—BIXINEÆ.

36. Bixa Linn.

Bixa Orellana Linn.; H. S 85; B. P. 230.
v. *Latkan.*
Cultivated generally, sometimes as if wild near villages; native of tropical America. The Anatto, Arnotto or Rocou.

37. Flacourtia Comm

* **Flacourtia Ramontchi** L'Herit. VAR. **sapida**; B. P. 231. *F. sapida* H. S. 83.
v. *Bénchi, katai tambat.*
Hughli district.

* **Flacourtia sepiaria** Roxb.; H. S. 84; B. P. 231.
v. *Bénchi.*
Everywhere; extends into Northern Sundribuns.

XIII.—POLYGALACEÆ.

38. Salomonia Lour.

* **Salomonia oblongifolia** DC.; B. P. 233.
Hughli district, Goghat sub-division, scarce.

39. Polygala Linn.

* **Polygala chinensis** Linn.; B. P. 235. *P. ciliata* H. S. 98.
v. *Meradu.*
Pasture-land and roadsides, general.

XIV.—CARYOPHYLLACEÆ.

40. Saponaria Linn.

Saponaria Vaccaria Linn.; B. P. 237. *Gypsophila Vaccaria* H. S. 175.

v. *Sabuni.*

In fields, a cold-weather weed, Hughli district, occasional, east of the Hughli, rare and casual.

41. Stellaria Linn.

Stellaria media Linn.; H S. 178; B. P. 237.

Occasionally in gardens near Calcutta as a cold-weather weed; does not persist and probably is always introduced with garden seeds from Europe; native of Asiatic and northern temperate countries.

42. Spergula Linn.

Spergula pentandra Linn.; H. S. 180; B. P 238.

In gardens near Calcutta; like the preceding species, but never seen except by Roxburgh; native of Europe.

43. Polycarpon Linn.

* **Polycarpon Loeflingiæ** Bth. & Hk. f.; B. P 238. *Hapalosia Loeflingiæ* H. S. 180.

v. *Ghima.*

Fields and waste places, general.

44. Polycarpæa Lamk.

* **Polycarpæa corymbosa** Lamk; B. P. 239.

Hughli district, Goghat sub-division.

XV.—PORTULACACEÆ.

45. Portulaca Linn.

* **Portulaca oleracea** Linn.; H. S. 173; B. P. 240.

v. *Bara laniya.*

Waste ground, everywhere.

* **Portulaca quadrifida** Linn.; H. S. 173; B. P. 240. *P. meridiana* H. S. 173.

v. *Chhota laniya.*

Waste ground, general but never very common.

46. Talinum Adans.

Talinum patens Willd.; B. P. 240. *T. cuneifolium* H. S. 174, at least in part.

In gardens, very rarely cultivated, but near **Calcutta not infrequent as a naturalised weed**; native of America. *T. cuneifolium*, a native of Asia and wild in some parts of India, is also occasionally **cultivated**, but the writer has never seen it occurring spontaneously.

XVI.—TAMARICACEÆ.

47. Tamarix Linn.

* **Tamarix gallica** Linn.; H. S. 179; B. P. 242.
v. *Jhau, ban jhaú, jaura.*
Banks of rivers and edges of marshes.

* **Tamarix dioica** Roxb.; H. S. 179; B. P. 242.
v. *Lal jhaú.*
Banks of rivers and edges of marshes.

XVII.—ELATINACEÆ.

48. Bergia Linn.

* **Bergia verticillata** Willd.; H. S. 99; B. P. 243.
v. *Lal keshuriya.*
Rice-fields and river-banks, general but not common.

* **Bergia ammannioides** Roxb.; H. S. 99; B. P. 243.
v. *Lal keshuriya.*
Rice-fields and river-banks, common and general.

XVIII.—GUTTIFERÆ.

49. Calophyllum Linn.

Calophyllum inophyllum Linn.; H. S. 87; B. P. 246.
v. *Káth champa, sultana champa.*
Planted occasionally about Calcutta; native of coasts of S. E. Asia.

50. Garcinia Linn.

Garcinia Xanthochymus Hook. f.; B. P. 247.
v. *Dampel.*
Planted occasionally in native gardens; native of S. E. Asia.

XIX.—MALVACEÆ.

51. Malvastrum A. Gray.

Malvastrum tricuspidatum A. Gray ; B. P. 257. *Malva americana* H. S. 111.
Hedges and waste places, general ; native of America.

Malvastrum spicatum A. Gray ; B. P. 257.
Waste places near Calcutta, occasional ; native of America.

52. Sida Linn.

* **Sida veronicæfolia** Lamk ; B. P. 258. *S. humilis* H. S. 113.
v. *Junka.*
Waste places, everywhere.

* **Sida cordifolia** Linn. ; H. S. 113 ; B. P. 258.
v. *Beréla, barjala.*
Waste ground, Goghat ; also reported from Serampore by Voigt.

* **Sida acuta** Burm. ; H. S. 113 ; B. P. 259.
v. *Kuréta.*
Waste places, everywhere.

* **Sida rhombifolia** Linn. ; H. S. 113 ; B. P. 259.
v. *Lal beréla, lal barjala.*
Fields and waste places, common, everywhere.

* **Sida rhomboidea** Roxb ; H. S. 113. *S. rhombifolia* VAR. *rhomboidea* B. P. 259.
v. *Swet beréla, swet barjala.*
Fields and waste places, general but not common.

53. Abutilon Gærtn.

* **Abutilon indicum** G. Don ; H. S. 114 ; B. P. 260. *A. populifolium* H. S. 114. *A. asiaticum* H. S. 114.
v. *Petari jhampi.*
Waste places, everywhere.

* **Abutilon hirtum** G. Don ; B. P. 1271. *A. graveolens* H. S. 114.
v. *Jhampi, kangani.*
Waste places, general but not common.

54. Wissadula Medik.

Wissadula rostrata Planch. ; B. P. 260. *Abutilon periplocifolium* H. S. 114.
Sometimes cultivated and often spontaneous ; native of Malaya.

55. Urena Linn.

* **Urena lobata** Linn. ; H. S. 112 ; B. P. 261.
v. *Ban okra.*
Waste places, everywhere.

* **Urena sinuata** Linn. ; H. S. 112 ; B. P. 261.
v. *Kunguiya.*
Waste places, western parts, rare.

56. Malachra Linn.

Malachra capitata Linn. ; H. S. 112 ; B. P. 262.
v. *Ban bhindi.*
Waste places, everywhere ; native of West Indies.

57. Hibiscus Medik.

* **Hibiscus ficulneus** Linn. ; B. P. 265. *Abelmoschus ficulneus* H. S. 119.
v. *Ban dhéras, jangli bhindi.*
Waste places, Hughli district, rare.

Hibiscus esculentus Linn. ; B. P. 265. *Abelmoschus esculentus* H. S. 118
v. *Bhindi, dhéras.*
In gardens ; cultivated throughout the Tropics.

Hibiscus Abelmoschus Linn. ; B. P. 265. *Abelmoschus moschatus* H. S. 119.
v. *Kalkastári, mushak-dhana.*
Near villages, very rare, perhaps only an escape ; native of S. E. Asia.

Hibiscus Manihot Linn. ; B. P. 266. *Abelmoschus Manihot* H. S. 120.
In gardens, also naturalised near Calcutta ; native of China.

Hibiscus tetraphyllus Roxb. ; B. P. 266. *Abelmoschus tetraphyllus* H. S. 119.
Thickets near Calcutta ; reported by Roxburgh but not met with since ; wild in Concan and Canara.

Hibiscus hirtus Linn. ; H. S. 118 ; B. P. 266.
v. *Lal surgumuni.*
Waste places, occasionally ; probably almost always only as an escape ; native of India.

* **Hibiscus vitifolius** Linn. ; H. S. 117 ; B P. 267.
v. *Ban kapás.*
Margins of fields and village-shrubberies, everywhere.

Hibiscus pandurifórmis Burm.; H. S. 117; B. P. 267.
Serampore; reported by Voigt, but not met with since; wild in India.

Hibiscus radiatus Willd., H. S. 116; B. P. 267.
In gardens, often; native of Indo-China and Malaya.

Hibiscus cannabinus Linn.; H. S. 117. B. P. 267.
v. *Mesta pát, Ambya pát.*
In fields, cultivated, but very seldom.

Hibiscus Sabdariffa Linn.; H. S. 118; B. P. 267.
v. *Mesta.*
In gardens, general; cultivated throughout the Tropics.

Hibiscus syriacus Linn. H. S. 117; B. P. 268.
v. *Sada juva.*
In gardens, everywhere: native of the Orient.

Hibiscus Rosa-sinensis Linn.; H. S. 116; B. P. 268.
v. *Juva.*
In gardens, everywhere; native of China.

Hibiscus schizopetalus Hook. f.
In gardens, general; native of Africa.

Hibiscus mutabilis Linn.; H. S. 118; B. P. 268.
v. *Thalpadma.*
In gardens, everywhere; native of Malaya.

* **Hibiscus tortuosus** Wall.; B. P. 268.
Estuary of the Hughli, collected by Wallich.

* **Hibiscus tiliaceus** Linn.; B. P. 269. *Paritium tiliaceum* H. S. 120.
P. tortuosum H. S. 120
v. *Bola.*
Sundribuns; also river banks as far north as Calcutta.

58. Gossypium Linn.

Gossypium herbaceum Linn.; H. S. 121; B. P. 269.
v. *Kapás, tula, rui.*
Cultivated; native of India.

59. Thespesia Corr.

* **Thespesia populnea** Corr.; H. S. 120; B. P. 270.
v. *Parás, parás pipal.*
Sundribuns; also planted about Calcutta.

60. Bombax Linn.

***Bombax malabaricum** DC.; B. P. 271. *Salmalia malabarica* H. S. 106.
v. *Simal.*
Wild and planted, everywhere.

61. Eriodendron I C.

Eriodendron anfractuosum DC.; B. P. 271. *Gossampinus Rumphii* H. S. 105.
v. *Swet simal.*
Planted and very occasionally spontaneous, near Calcutta chiefly; native of S. E. Asia.

XX.—STERCULIACEÆ.

62. Sterculia Linn.

Sterculia alata Roxb; B. P. 274. *Pterygota Roxburghii* H. S. 103.
v. *Buddha ki narikel.*
Planted in avenues; native of Indo-China.

Sterculia colorata Roxb.; B. P. 274. *Erythropsis Roxburghiana* H. S. 104.
v. *Samarri.*
Planted occasionally near Calcutta; native of India.

Sterculia fœtida Linn.; H. S. 108; B. P. 274.
v. *Jangli badám.*
Planted, roadsides and near temples; native of S. E. Asia.

63. Heritiera Ait.

*** Heritiera minor** Roxb.; H. S. 103; B. P. 274.
v. *Sundri.*
Sundribuns.

64. Kleinhovia Linn.

Kleinhovia Hospita Linn.; H. S. 109; B. P. 1272.
v. *Bola.*
Planted about Calcutta; native of S. E. Asia.

65. Helicteres Linn.

*** Helicteres Isora** Linn.; B. P. 275. *Isora corylifolia* H. S. 102.
v. *Atmora.*
Hughli district, in the drier parts, not uncommon.

66. **Pterospermum** Schreb.

Pterospermum acerifolium Willd.; H. S. 107; B. P. 276.

v. *Kanak champa.*

Planted very often on roadsides and in native enclosures; native of S. E. Asia.

67. **Pentapetes** Linn.

* **Pentapetes phœnicea** Linn.; H. S. 107; B. P. 277.

v. *Kat lata, bandhuli.*

Waste places and wet rice-fields, general.

68. **Melochia** Linn.

* **Melochia corchorifolia** Linn.; B. P. 277. *Lochennia corchorifolia* H. S. 109.

v. *Tiki okra, bil pata.*

Waste places, dry fields and grassy glades, everywhere.

69. **Waltheria** Linn.

* **Waltheria indica** Linn.; H. S. 110; B. P. 278.

v. *Khar dudhi.*

Waste places, general but scarce.

70. **Abroma** Jacq.

Abroma augusta Linn.; H. S. 108; B. P. 278.

v. *Ulat kambal.*

Occasionally cultivated, frequent as an escape; native of Eastern Asia.

71. **Guazuma** Plum.

Guazuma tomentosa Kunth; H. S. 108; B. P. 278.

v. *Nipál tunth.*

Planted, but more often self-sown, everywhere, and very plentiful; native of tropical America.

XXI.—TILIACEÆ.

72. **Brownlowia** Roxb.

* **Brownlowia lanceolata** Benth.; B. P. 281.

v. *Bola sundri, kedar sundri.*

Sundribuns.

73. **Grewia** Linn.

Grewia asiatica Linn.; H. S. 128; B. P. 283.

v. *Phalsa.*

Serampore, according to Voigt, but almost certainly only planted as it occasionally is in native gardens elsewhere; native of India.

Grewia polygama Roxb.; H. S. 127.

Also stated by Voigt to occur at Serampore, but more certainly only as a planted species; native of India.

* **Grewia lævigata** Vahl; H. S. 127; B. P. 283.

v. *Káth bimla.*

Village shrubberies, west of the river Hughli, occasional.

Grewia multiflora Juss.; B. P. 284. *G. sepiaria* H. S. 128.

v. *Pani sara.*

A favourite hedge-plant, sometimes also self-sown; native of India.

* **Grewia hirsuta** Vahl; B. P. 284. *G. trichodes* H. S. 127.

Waste places in Goghat, Western Hughli district; also at Serampore, according to Voigt.

74. Triumfetta Linn.

* **Triumfetta rhomboidea** Jacq.; B. P. 285. *T. angulata* H. S. 127. *T. trilocularis* H. S. 127.

v. *Ban okra.*

Waste places, everywhere.

75. Corchorus Linn.

* **Corchorus acutangulus** Lamk; H. S. 127; B. P. 286.

v. *Tita pát.*

Waste places and dry fields, everywhere.

* **Corchorus fascicularis** Lamk; H. S. 126; B. P. 286.

v. *Jangli pát, bil nalita.*

Serampore, according to Voigt; needs verification.

* **Corchorus trilocularis** Linn.; H. S. 126; B. P. 286.

Serampore, according to Voigt; needs verification.

* **Corchorus olitorius** Linn.; H. S. 126; B. P. 286.

v. *Pát.*

An annual crop in the rains; native of Bengal. Jute.

Corchorus capsularis Linn.; H. S. 127; B. P. 286.

v. *Pát, ghi nalita pát.*

An annual crop in the rains; native of China. Jute.

XXII.—LINACEÆ.

76. Linum Linn.

Linum usitatissimum Linn ; H. S. 100 ; B. P. 289.

v. *Masina, tisi.*

A cold-weather crop ; native of the Orient.

XXIII.—MALPIGHIACEÆ.

77. Malpighia Linn.

***Malpighia coccifera** Linn. ; H. S. 170.

Planted as a hedge, but sometimes also as if wild, *e.g.* near Rajapur (*Kurz*).

78. Hiptage Gærtn.

Hiptage Madablota Gærtn. ; H. S. 170 ; B. P. 290.

v. *Basanti, mahadeo lata.*

Planted frequently ; recorded by Voigt from Serampore, but almost certainty only as a garden species ; native of S. E. Asia.

XXIV.—ZYGOPHYLLACEÆ.

79. Tribulus Linn.

Tribulus cistoides Linn. ; H. S. 184 ; B. P. 292.

Collected once near Calcutta by Edgeworth, most probably only a garden escape ; native of the Tropics.

Tribulus terrestris Linn. ; B. P. 292. *T. lanuginosus* H. S. 184.

Serampore, according to Voigt ; needs confirmation.

XXV.—GERANIACEÆ.

80. Oxalis Linn.

* **Oxalis corniculata** Linn. ; H. S. 191 ; B. P. 294.

v. *Amrúl, chuka-tripati.*

Fields, gardens and waste places, everywhere.

81. Biophytum DC.

* **Biophytum sensitivum** DC. ; H. S. 191 ; B. P. 295.

v. *Ban naranga.*

Fields, gardens and waste places, everywhere.

82. Averrhoa Linn.

Averrhoa Carambola Linn.; H. S. 191; B. P. 296.

v. *Kamaranga, kamarak.*

Near villages, often, cultivated; occasionally as if wild; native of Malaya.

Averrhoa Bilimbi Linn.; H. S. 191; B. P. 296.

v. *Bilimbi.*

Near villages, everywhere, cultivated; often as if wild; native of Malaya.

83. Impatiens Linn.

Impatiens Balsamina Linn.; H. S. 189; B. P. 296.

v. *Dúpati.*

In gardens, everywhere; often also as an escape; native of S. E. Asia.

84. Hydrocera Bl.

* **Hydrocera triflora** W. & A.; H. S. 189; B. P. 297.

v. *Domuti.*

Ditches, 24-Pergunnahs, rare.

XXVI.—RUTACEÆ.

85. Acronychia Forst.

Acronychia laurifolia Bl.; B. P. 300. *Cyminosma pedunculata* H. S. 183.

In scrub jungles near Matla (*Kurz*!); probably an escape from cultivation; native of Indo-China and Malaya.

86. Glycosmis Corr.

* **Glycosmis pentaphylla** Corr.; H. S. 139; B. P. 300.

v. *Ashhoura.*

Thickets and village-shrubberies, everywhere.

87. Clausena Burm.

* **Clausena heptaphylla** W. & A.; H. S. 141; B. P. 301.

v. *Karan phál.*

Village-shrubberies, general, but not plentiful.

88. Murraya Linn.

Murraya exotica Linn.; H. S. 139; B. P. 302. *M. paniculata* H. S. 140.

v. *Kamini.*

A common hedge; often also in village-shrubberies, but neither the shrubby nor the arboreous form truly wild in our districts; native of S. E. Asia.

Murraya Kœnigii Spreng.; B. P. 302. *Bergera Kœnigii* H. S. 139.

v. *Barsanga.*

Planted near villages. Curry leaf; native of India and Indo-China.

89. Triphasia Lour.

Triphasia Aurantiola Lour.; B. P. 303. *T. trifoliata* H. S. 138.

v. *Chini narangi.*

In gardens, but also not infrequently as if wild in village-shrubberies; native of China.

90. Feronia Gærtn.

Feronia Elephantum Corr.; H. S. 141; B. P. 305.

v. *Káth bél.*

In village-shrubberies planted and occasionally self-sown; considered by Voigt wild at Serampore; native of drier parts of India.

91. Ægle Corr.

* **Ægle Marmelos** Corr.; H. S. 141; B. P. 305.

v. *Bél, vilva.*

Near villages, everywhere; often planted, but so frequently as if wild that it may almost be considered native generally: is truly native in Western Hughli district (Goghat).

92. Citrus Linn.

Citrus decumana Linn.; H. S. 141; B. P. 307.

v. *Batavi-nimbu.*

Cultivated everywhere, but occasionally as if wild in village shrubberies; native of Malaya and Polynesia.

Citrus medica Linn.; B. P. 306. VAR. **typica.** *C. medica* H. S. 142.

v. *Beg pura.*

Occasionally cultivated. The Citron; native of Eastern Asia.

VAR. **Limonum.** *C. Limonum* H. S. 142.

v. *Karna-nimbu.*

Cultivated fairly generally. The Lemon; native of India.

VAR. **acida.** *C. Bergamia* H. S. 142.

v. *Pati-nimbu, kaggi-nimbu, gora-nimbu, kamarali-nimbu.*

Cultivated everywhere in many varieties, the two chief forms being the *Pati* or "common, round" and the *Kaggi* or "long, small" and particularly the latter. The Acid Lime; native of S. E. Asia.

XXVII.—BURSERACEÆ.

93. Garuga Roxb.

Garuga pinnata Roxb.; H. S. 150; B. P. 311.

v. *Júm, túm kharpat, nil bhádi.*

Planted occasionally and perhaps sometimes self-sown, given by Voigt as occurring at Serampore, but certainly not truly wild; native of India and Indo-China.

XXVIII.—MELIACEÆ.

94. Melia Linn.

Melia Azedarach Linn.; H. S. 133, B. P. 313.

v. *Bakarjan, gora nim, maha ném.*

Planted on roadsides and in avenues, native of the Orient and perhaps wild in Upper India.

* **Melia Azadirachta** Linn.; B. P. 314. *Azadirachta indica* H. S. 133.

v. *Nim.*

In village-shrubberies, everywhere, so often spontaneous that it may almost be considered native. The Margosa Voigt is almost certainly correct in considering that the *Nim* is not a *Melia*.

95. Amoora Roxb.

Amoora Rohituka W. & A.; H. S. 134; B. P 316.

v. *Tikta-ráj.*

Planted very often; given by Voigt as occurring at Serampore, but certainly not truly wild in our districts; native of India and Indo-China.

* **Amoora cucullata** Roxb.; H. S. 134; B. P. 316.

v. *Amúr latmi.*

Sundribuns.

96. Carapa Aubl.

* **Carapa obovata** Bl.; B. P. 318. *Xylocarpus Granatum* H. S. 136.

v. *Dhundol, posher, pussur.*

Sundribuns.

There is another species of *Carapa* to which the name *Pussur* more properly belongs; it is also met with in the Sundribuns, but it

is not certain that it occurs in the western or 24-Pergunnahs portion of that region.

97. Swietenia Linn.

Swietenia Mahagoni Linn.; H. S. 137; B. P. 319.

v. *Mahagni* (the American name).

Planted in avenues.

Swietenia macrophylla King; B. P. 319.

v. *Bara mahagni.*

Largely planted in avenues and on roadsides.

98. Cedrela Linn.

Cedrela Toona Roxb.; H. S. 137; B. P. 320.

v. *Túm.*

Planted everywhere, and often self-sown near villages; given by Voigt as occurring at Serampore, but probably not truly wild in our districts; native of India.

XXIX.—OLACINEÆ.

99. Olax Linn.

Olax phœnicárpa Roxb.; H. S. 31.

v. *Moicha.*

Serampore, *Voigt*; an altogether doubtful plant; it may be a form of *Olax scandens* which has not, however, been collected within our districts, though it occurs both in the damp forests of the North-Eastern Sundribuns and in the drier parts of Western Bengal and Behar just beyond their borders: the plant ought, therefore, to be carefully looked for.

XXX.—CELASTRINEÆ.

100. Elæodendron Jacq.

Elæodendron glaucum Pers.; H. S. 167; B. P. 329.

Planted about Calcutta; native of India.

101. Salacia Linn.

* **Salacia prinoides** DC.; H. S. 168; B. P. 331.

v. *Modhu phál.*

Western Sundribuns.

XXXI.—RHAMNACEÆ.

102. Zizyphus Juss.

Zizyphus Jujuba Linn.; H. S. 145; B. P. 333.
v. *Bér, kul gachh.*
Planted, everywhere; native of S. E. Asia.

* **Zizyphus Œnoplia** Mill.; H. S. 145; B. P. 334.
v. *Shiakol.*
Village-shrubberies, everywhere.

103. Ventilago Gærtn.

* **Ventilago maderaspatana** Gærtn.; H. S. 146; B. P. 334.
v. *Ruktu píta.*
Western Hughli district, Goghat.

104. Gouania Linn.

* **Gouania leptostachya** DC.; H. S. 147; B. P. 335.
Serampore, according to Voigt; not met with by others in our districts.

XXXII.—AMPELIDEÆ.

105. Vitis Linn.

* **Vitis latifolia** Roxb.; H. S. 29; B. P. 337.
v. *Govila.*
Woods and thickets, everywhere.

* **Vitis quadrangularis** Wall.; H. S. 27; B. P. 338.
v. *Harjora.*
Woods and thickets, general.

* **Vitis adnata** Wall.; H. S. 38; B. P. 338.
Village-shrubberies, everywhere.

Vitis lanata Roxb.; H. S. 29.
Serampore, according to Voigt; not impossibly, but needs verification; is plentiful in West Bengal.

* **Vitis repanda** W. & A.; B. P. 338. *V. pallida* H. S. 28. *V. glauca* H. S. 28.
v. *Goáliya lata, gar goáliya.*
Hedges and thickets, Hughli district.

Vitis indica Linn.; H. S. 29.
v. *Amclouka.*

Serampore, according to Voigt, needs verification. Probably some other species is intended, *V. indica* being apparently confined to S. India

Vitis vinifera Linn.; H. S. 29.
v. *Angúr gachh.*
Very occasionally cultivated in our districts.

* **Vitis trifolia** Linn.; B. P. 338. *V. carnosa* H. S. 28.
v. *Amal lata, soné kesar.*
Thickets, hedges and forests, everywhere, is very plentiful in the Western Sundribuns.

* **Vitis pedata** Vahl; H. S. 28; B. P. 339
v. *Goáli lata.*
Hedges and thickets, general.

Vitis elongata Wall.; H. S. 28.
Serampore, according to Voigt; not impossibly, but needs verification; is plentiful in the submontane forests of Sikkim.

106. Leea Linn.

* **Leea macrophylla** Roxb.; H. S. 29; B. P. 341.
v. *Dhól samudra.*
Village-shrubberies, general, but not plentiful.

* **Leea crispa** Linn.; H. S. 29; B. P. 340.
v. *Ban chalita.*
Village-shrubberies, rare.

* **Leea robusta** Roxb.; H. S. 29; B. P. 340.
v. *Haramada.*
Village-shrubberies, rare.

* **Leea æquata** Linn.; B. P. 340. *L. hirta* H. S. 30.
v. *Kák jhanga.*
Village-shrubberies, not uncommon, general.

* **Leea sambucina** Willd; B. P. 340. *L. Staphylea* H. S. 30.
v. *Kukur jhiwa.*
Village-shrubberies, general.

XXXIII.—SAPINDACEÆ.

107. Cardiospermum Linn.

* **Cardiospermum Halicacabum** Linn.; H. S. 93; B. P. 342.
v. *Shibjhul, nayaphutki.*
Hedges, thickets and waste places, everywhere.

108. Allophylus Bl.

* **Allophylus Cobbe** Linn. VAR. **serrata**; B. P. 343. *Schmiedelia serrata* H. S. 93.
v. *Rakhal phul.*
Village-shrubberies, general.

109. Sapindus Linn.

Sapindus trifoliatus Linn.; B. P. 344. *S. emarginatus* H. S. 94.
v. *Bor ritha.*
Planted near villages; native of India.

Sapindus Mukorossi Gærtn.; B. P. 344. *S. detergens* H. S. 94.
v. *Ritha.*
Planted near villages; native of India.

110. Erioglossum Bl.

Erioglossum edule Bl.; B. P. 344. *Sapindus rubiginosus* H. S. 94.
Village-shrubberies and about tanks, not very general, but usually as if wild; native of S. E. Asia.

111. Aphania Bl.

* **Aphania Danura** Radlk.; B. P. 345. *Sapindus Danura* H. S. 94.
v. *Danúra.*
Western Sundribuns; village-shrubberies south of Calcutta and Howrah.

112. Blighia Kœn.

Blighia sapida Kœn. *Cupania sapida* H. S. 94.
In gardens near Calcutta, occasionally; native of America.

113. Nephelium Linn.

Nephelium Litchi Camb.; H. S. 95; B. P. 346.
v. *Litchi.*
Planted generally; native of China. The Lichi.

Nephelium Longana Camb.; H. S. 95; B. P. 346.
v. *Ashphál.*
Planted occasionally; native of Malaya. The Longan.

XXXIV.—ANACARDIACEÆ.

114. Mangifera Linn.

Mangifera indica Linn.; H. S. 272; B. P. 352.
v. *Ám, ámb.*
Planted everywhere; native of Indo-China. The Mango.

115. Anacardium Linn.

Anacardium occidentale Linn.; H. S. 270; B. P. 354.
v. *Hidgli badám, kaju.*
Planted occasionally; native of America.

116. Odina Roxb.

* **Odina Wodier** Roxb.; H. S. 275; B. P. 354.
v. *Jiyal.*
Village-shrubberies, everywhere.

117. Spondias Linn.

Spondias mangifera Willd.; H. S. 143; B. P. 356.
v. *Ámra.*
In village-shrubberies, everywhere; often planted, still oftener self-sown; native of S. E. Asia.

Spondias dulcis Willd.; H. S. 144; B. P. 356.
v. *Bilati ámra.*
Occasionally planted; native of Polynesia.

XXXV.—MORINGACEÆ.

118. Moringa Lamk.

Moringa pterygosperma Gærtn.; H. S. 78; B. P. 357.
v. *Sajina.*
Planted, everywhere, but often also self-sown near villages; cultivated throughout the Tropics.

CALYCIFLORÆ.

XXXVI.—LEGUMINOSÆ.

119. Cicer Linn.

Cicer arietinum Linn.; H. S. 226; B. P. 366.
v. *Channa.*
A cold-weather crop, not much grown in our districts; native of countries bordering on the Mediterranean. The Chick-Pea.

120. Vicia Linn.

Vicia sativa Linn.; H. S. 226; B. P. 366.
v. *Ankári.*
A cold-weather crop, rarely met with in our districts; also in one form, a cold-weather field weed, general; native of Europe and the Orient. The Tare.

* **Vicia hirsuta** Linn.; B. P. 367. *Ervum hirsutum* H. S. 226.
v. *Masúr-channa.*
A cold-weather field weed, everywhere; very occasionally also a fodder crop.

21. Lens Gren. & Godr.

Lens esculenta Moench; B. P. 367. *Ervum Lens* H. S. 226.
v. *Masúr, masuri.*
A cold-weather field crop, mostly in Hughli district; native of Europe. The Lentil.

122. Lathyrus Linn.

Lathyrus Aphaca Linn.; H. S. 227; B. P. 368.
v. *Jangli mátár, masúr channa.*
A cold-weather field weed, general, also often in grassy places where cattle feed; has no claim to be a native of our districts; native of Europe.

Lathyrus sativus Linn.; H. S. 227; B. P. 368.
v. *Kesári, kassúr.*
A cold-weather field crop; native of S. Europe. The Vetch.

123. Pisum Linn.

Pisum sativum Linn.; H. S. 226; B. P. 369.
v. *Mátár, kabuli mátár.*
In gardens about Calcutta and occasionally as a field crop in the Hughli district; native, probably, of the Orient.

Pisum arvense Linn.; B. P. 369. *P. sativum* VAR. *quadratum* H. S. 227.
v. *Mátár, chhoto mátár.*
A field crop of the cold weather, general; native, probably, of Western Asia.

124. Abrus Linn.

* **Abrus precatorius** Linn.; H. S. 228; B. P. 369.
v. *Kúnch, chun-hati.*
Hedges and thickets, general.

125. Crotalaria Linn.

Crotalaria quinquefolia Linn., H. S. 208; B. P. 373.
Serampore, according to Voigt.; by no means impossible, but needs verification; native of India and Indo-China.

Crotalaria Brownei Bert.; H. S. 207; B. P. 373.

In gardens occasionally, and sometimes as an escape in the neighbourhood of Calcutta, introduced from the West Indies.

Crotalaria incana Linn.; H. S. 207; B. P. 373.

In gardens occasionally, and frequent as an escape in the neighbourhood of Calcutta; introduced from the West Indies.

Crotalaria Saltiana Andr.; B. P. 373. *C. striata* H. S. 207.

v. *Ban çan.*

Waysides and waste places, everywhere; especially common in Sundribuns cleanings. Though now one of our most plentiful weeds this is not mentioned by Roxburgh and is probably an introduction to Bengal of less than 100 years' standing; now cosmopolitan in the Tropics; probably originally native of Africa.

Crotalaria laburnifolia Linn., H. S. 207; B. P. 373.

v. *Múna.*

Serampore according to Voigt; not improbably, as it is fairly abundant in East Bengal, but needs verification for our districts; native of Eastern Asia.

Crotalaria medicaginea DC.; B. P. 373. *C. trifoliastrum* H. S. 207.

Serampore, according to Voigt; not altogether impossible, as it is plentiful in Chota Nagpur, but needs verification for our districts; native of the drier parts of India.

Crotalaria alata Ham.; H. S. 205; B. P. 373.

Waste places near Calcutta and Howrah, but rare and certainly introduced in our districts; native of S. E. Asia.

* **Crotalaria verrucosa** Linn.; H. S. 206; B. P. 373.

v. *Ban çan.*

Waste places and fairly dry fields, everywhere.

Crotalaria juncea Linn.; H. S. 206; B. P. 374.

v. *Çan.*

A field crop, everywhere. The Sunn or Indian Hemp; native of S. E. Asia.

* **Crotalaria retusa** Linn.; H. S. 206; B. P. 374.

v. *Bhil jhanjhan.*

Waste places, everywhere.

Crotalaria sericea Retz; H. S. 206; B P. 374.

v. *Pipali jhanjhan.*

Waste places, but only about Calcutta, Howrah, Chinsura and Serampore; hardly native in our districts; native of S. E. Asia.

* **Crotalaria mysorensis** Roth ; B. P. 374.

Drier grassy glades and fields, west of the Hughli only, and not very common.

Crotalaria nana Burm. VAR. **patula** B. P. 374.

Dry grassy glades about Shibpur, introduced ; native of Burma.

Crotalaria calycina Schrank ; B. P. 375. *C. anthylloides* H. S. 205.

Serampore, according to Voigt; not at all impossibly, but needs verification for our districts; native of S. E. and E. Asia.

* **Crotalaria prostrata** Roxb.; H. S. 207; B. P. 375.

v. *Chhota jhanjhan.*

Drier grassy glades and fields, everywhere.

* **Crotalaria acicularis** Ham.; B. P. 375.

v. *Chhota jhanjhan.*

Drier grassy glades and fields, general; often confused with *C. prostrata.*

126. Flemingia Roxb.

* **Flemingia congesta** Roxb.; H. S. 229; B. P. 378.

v. *Bara salphan, bhalia.*

Sundribuns, Calcutta, Serampore, according both to Roxburgh and Voigt, but evidently rare; no example from our districts exists in the Calcutta Herbarium, and the writer has never succeeded in meeting with the plant: it is common in North Bengal.

127. Cylista Ait.

* **Cylista scariosa** Ait.; H. S. 236; B. P. 379.

Hedges and thickets, but not very common.

128. Rhynchosia Lour.

* **Rhynchosia rufescens** DC.; B. P. 380.

Waste places, rare.

* **Rhynchosia viscosa** DC.; B. P. 380. *Dolichos glutinosus* H. S. 231.

v. *Shim bhatráji.*

Hedges and thickets, general, but not plentiful.

* **Rhynchosia sericea** Span.; B. P. 381.

Hedges and thickets, general, but not common.

* **Rhynchosia bracteata** Benth.; B. P. 381.

Hedges and thickets, rare.

129. Atylosia W. & A.

* **Atylosia scarabæoides** Benth.; B. P. 383. *Cantharospermum paucifiorum* H. S 236.

v. *Banár kalai.*

Hedges and thickets, everywhere.

130. Cajanus DC.

Cajanus indicus Spreng ; H. S 236, B. P. 383.

v *Arhar*

A field crop, everywhere. The Pigeon Pea, native possibly of Africa, certainly nowhere wild in India, probably nowhere wild in Asia.

131. Phaseolus Linn.

Phaseolus semierectus Linn. H. S 230, B. P. 386.

In village-shrubberies and waste places, near Calcutta and Howrah only; introduced, native of America

* **Phaseolus adenanthus** G. F. Mey , B. P 386 *P. rostratus* H. S. 230.

v. *Ban birbati*

Western Sundribuns, on river banks, banks of the Hughli as far north as Serampore, occasionally in village-shrubberies near the river Hughli.

Phaseolus lunatus Linn , H S 250, B P 386.

In gardens, cultivated, native of S America. The Lima Bean.

Phaseolus vulgaris Linn H S. 229, B P. 386.

In gardens, cultivated ; native of S. Europe and the Orient. The French Bean.

Phaseolus multiflorus Willd. H. S. 230; B. P. 389

In gardens of European residents, cultivated ; native of America. The Scarlet Runner.

Phaseolus trilobus Ait., H. S 231 , B. P. 387.

v. *Mugáni.*

Fields and waste places, everywhere.

* **Phaseolus sublobatus** Roxb. ; H S 230; B P. 387.

v. *Ghora mung.*

Serampore, according to Voigt ; not impossibly, as it is pleatiful in Behar and Chota Nagpur, but it needs verification for our districts.

Phaseolus Mungo Linn.; B. P. 387.

v. *Tikuri kalai.*

Cultivated, everywhere; native of India.

There is some confusion in the H. S. as regards this plant; the vernacular name *Tikari* is always applied to this plant, which has yellow flowers, whereas Voigt associates the name with *Dolichos pilosus*, which is a *Vigna* with blue flowers; this plant is in fact omitted by Voigt though it is the commonest of the five allied forms cultivated in our districts. The confusion has, however, been shared by the majority of those who have dealt with these pulses.

VAR. **Roxburghii** B. P. 387. *Phaseolus Roxburghii* H. S. 221.

v. *Másh kalai, urid.*

Cultivated, mainly in the Hughli district; native of India.

Phaseolus radiatus Linn.; B. P. 387. *P. Mungo* H. S. 230.

v. *Mung, háli mung.*

A field crop, everywhere; native of India.

VAR. **aurea** B. P. 388. *P. aureus* H. S. 231.

v. *Sona mung.*

A field crop, about Calcutta; native of China.

VAR. **grandis** B. P. 388. *P. Mungo* VAR. *melanosperma* H. S. 230.

v. *Krishna mung, kála mung.*

An occasional field crop; native of China.

132. Vigna Savi.

* **Vigna pilosa** Bak.; B. P. 389. *Dolichos pilosus* H. S. 232.

v. *Jhikrai, malkonia.*

Hedges and thickets, rare.

* **Vigna luteola** Benth.; B. P. 389. *Dolichos gangeticus* H. S. 232.

Western Sundribuns on river banks, banks of the Hughli as far north as Uluberia.

Vigna Catjang Endl.; B. P. 389. *Dolichos sinensis* VAR. *orthocarpus* H. S. 232.

v. *Barbati.*

Cultivated everywhere; native of China.

VAR. **sinensis** B. P. 389. *Dolichos sinensis* VAR. *eccremocarpus* H. S. 232.

Cultivated generally; native of China.

133. Pachyrhizus Rich.

Pachyrhizus angulatus Rich.; H. S. 234; B. P. 390.

v. *Sankálu.*

Cultivated generally; sometimes as if wild in village-shrubberies; native of America.

134. Dolichos Linn.

Dolichos Lablab Linn.; B. P. 391. *Lablab cultratum* H. S. 233.

v. *Shim.*

Cultivated everywhere, in many different races; native of Africa.

VAR. **lignosus** B. P. 391. *Lablab vulgare* H. S. 233.

v. *Shim.*

Cultivated everywhere, in several distinct races; native of Africa.

Dolichos biflorus Linn.; B P. 391. *D. uniflorus* H. S. 232.

v. *Kurti kalai.*

Cultivated sparingly in the Hughli district; native of India.

135. Psophocarpus Neck.

Psophocarpus tetragonolobus DC.; H. S. 234; B. P. 391.

v. *Chari kona shim.*

In native gardens about Calcutta, occasionally; native of Africa.

136. Teramnus Sw.

* **Teramnus labialis** Spreng.; B P 393. *Glycine labialis* H. S. 214.

v. *Ban kalai.*

Hedges, thickets and waste places, everywhere.

* **Teramnus debilis** Prain; B. P. 393. *Glycine debilis* H. S. 214.

v. *Mashání.*

Hedges and thickets, general.

137. Canavalia DC.

Canavalia ensiformis DC.; B. P. 394. *C. gladiata* H. S. 234.

v. *Makhan sim.*

Cultivated, in several varieties, generally throughout the Tropics; nowhere really wild.

* **Canavalia virosa** W. & A.; H. S. 235; B. P. 394.

v. *Kath sim, kala sim.*

Hedges and thickets, not common, and not met with in 24-Pergunnahs: if the fruits are not seen this is very easily mistaken for *C. obtusifolia.*

* **Canavalia lineata** DC.; B P. 394. *C. obtusifolia* H. S. 235.

Western Sundribuns, sea-face in sandy places, rather rare.

* **Canavalia obtusifolia** DC.; B P. 394. *C. turgida* Grah.

Western Sundribuns, on river banks, very common; also plentiful on the banks of the river Hughli as far north as Calcutta. This is the only wild *Canavalia* at all common in our districts; in literature it is

very much confused with *C. lineata*, perhaps from the fact that both are essentially sea-shore plants. In the field it is more often confused with *C. virosa* owing to their great similarity except as regards fruit. The name *C. obtusifolia*, though it *belongs* to this plant, is not particularly appropriate; it would be much more convenient if it were possible to employ Graham's name *C. turgida* which is most suitable to its pods. For *C. lineata*, on the other hand, the name *C. obtusifolia* would, had its use been permissible, have been quite appropriate.

138. Erythrina Linn

*** Erythrina indica** Lamk; H. S. 237; B. P. 398.

v. *Palita mandar.*

Western Sundribuns, along the sea-face, wild; not met with in the swamp forests; often elsewhere in our districts, but only planted as a support for climbing vegetables or as a native hedge.

Erythrina ovalifolia Roxb.; H. S. 237; B. P. 398.

v. *Hari kákra.*

In village-shrubberies, especially to the south of Calcutta and Howrah; probably not wild in our districts; used by the inhabitants as they do the preceding species; native of S. E. Asia and Polynesia.

139. Mucuna Adans.

*** Mucuna pruriens** DC.; B. P. 400. *M. pruritus* H. S. 235.

v. *Alkúshi.*

Hedges, thickets and village-shrubberies, everywhere.

The cowhage; pods covered with intolerably stinging hairs.

Mucuna utilis Wall.; H. S 235; B. P. 400.

v. *Alkúshi, bilati alkúshi, kála khamach.*

In native gardens, often; introduced from Africa; most probably derived originally from *M. pruriens*; but pods only velvety and devoid of stinging hairs.

Mucuna nivea DC.; H. S. 236; B. P. 400.

v. *Khamach.*

In native gardens, everywhere; also most probably derived originally from *M. pruriens*, but evolved in India; pods only velvety and devoid of stinging hairs. In this plant the flowers are white, in *M. pruriens* and *M. utilis* they are dark purple.

140. Butea Roxb.

Butea frondosa Roxb.; H. S. 238; P. B. 401.

v. *Palás.*

Planted occasionally on roadsides and in avenues; given by Voigt as occurring at Serampore but there almost certainly not wild; native of the drier parts of India and Indo-China.

141 Clitoria Linn.

Clitoria Ternatea Linn., H. S. 213; B. P. 402.

v. *Aparajita.*

In gardens, everywhere, also often self-sown and spontaneous in hedges and thickets, introduced from Malaya.

142. Sesbania Pers.

Sesbania ægyptiaca Pers.; B. P. 403. *S. ægyptiaca* H. S. 216.

v. *Jainti.*

Planted, but only occasionally, native of Africa.

VAR. **picta**, B. P. 403. *S. ægyptiaca* VAR. *concolor* H. S. 216.

Planted generally; native of Africa.

VAR. **bicolor** W. & A.; H. S. 216; B. P. 404.

Planted everywhere, and often spontaneous in village-shrubberies; native of Africa.

* **Sesbania paludosa** Prain; B. P. 404. *Æschynomene paludosa* H. S. 219.

v. *Káth-sola.*

In ditches and marshes, in deep water, during the rainy season everywhere; never cultivated.

Sesbania cannabina Pers.; B. P. 404. *S. aculeata* H. S. 216.

v. *Dhunchi.*

A regular field crop in the rainy season, everywhere; not known wild; possibly evolved from *S. aculeata.*

* **Sesbania aculeata** Pers.; B. P. 404. *S. procumbens* H. S. 216.

Edges of wet rice-fields, general. Voigt has confused this species, which is not uncommon in our districts nominally with the commonly cultivated *S. cannabina*, but really with the not very dissimilar *S. procumbens*; which he gives as occurring at Serampore. *S. procumbens* has never, however, been found anywhere except in the Madras and Bombay Presidencies.

* **Sesbania uliginosa** Sweet; H. S. 216; B. P. 404.

Wet fields, very rare.

Both Roxburgh and Voigt have found this species in our districts; from Roxburgh's figure of the plant it is clearly very different from *S. aculeata*; no one has gathered it since Voigt wrote. Mr. Baker, indeed, unites *S. paludosa* and *S. uliginosa*; the latter is, however, prostrate with stems that measure fewer inches than those of the former, which is erect, do in feet.

Sesbania grandiflora Pers.; B. P. 404. *Agati grandiflora* H. S. 216.

v. *Agati, agasthi.*

Planted everywhere, as a support for climbing vegetables; native of Malaya.

143. Tephrosia Pers.

* **Tephrosia Hookeriana** W. & A., B. P. 405. *T. villosa* H. S. 215.

Waste places and roadsides, rare.

* **Tephrosia purpurea** Pers.; H. S. 215; B. P. 405.

v. *Sarphonka, ban nil.*

Waste places and roadsides, general.

144. Pongamia Vent.

* **Pongamia glabra** Vent; H. S. 239; B. P. 407.

v. *Karanja.*

Western Sundribuns; banks of Hughli as far north as Chinsura.

145. Derris Lour.

* **Derris scandens** Benth.; B. P. 408. *Brachypterum scandens.* H. S. 240.

v. *Noa lata.*

Woods and thickets, everywhere.

* **Derris uliginosa** Benth.; B. P. 408. *Pongamia uliginosa* H. S. 239.

v. *Pan lata.*

Western Sundribuns; banks of Hughli as far north as Chinsura.

146. Dalbergia Linn. f.

Dalbergia lanceolaria Linn f.; B. P. 411. *D. frondosa* H. S 241.

Planted on roadsides and in avenues occasionally.

Dalbergia Sissoo Roxb.; H. S. 241; B. P. 411.

v. *Sisoo.*

Roadsides and avenues, and near villages, often planted; given by Voigt as occurring at Serampore, but not wild though sometimes self-sown in our districts; native of submontane (Himalayan) forests.

Dalbergia latifolia Roxb.; H. S. 240; B. P. 411.

v. *Swet sál, sit sál.*

Occasionally planted on roadsides and in avenues, not infrequently so near villages; given by Voigt as occurring at Serampore, but certainly not wild in our districts; native of India.

* **Dalbergia spinosa** Roxb.; H. S. 241; B. P. 411.

v. *Amanta.*

Western Sundribuns, very plentiful.

* **Dalbergia torta** Grah. *D. candenatensis* B. P. 411.

v *Panchioli.*

Western Sundribuns.

147. Melilotus Linn.

* **Melilotus indica** All.; B. P. 413. *M. parviflora* H. S. 209.

v. *Ban méthi.*

A field weed in the cold season, everywhere.

* **Melilotus alba** Lamk; B. P. 413. *M. leucanthi* H. S. 209.

v. *Safed ban m'thi, ban piring.*

A field weed in the cold season, general.

148. Trigonella Linn.

Trigonella Fœnum-græcum Linn.; H. S. 209; B. P. 414.

v. *Méthi, bara méthi.*

In native gardens, occasionally; native of S. Europe.

Trigonella corniculata Linn.; H S. 209; B. P. 414.

v. *Piring.*

Sometimes cultivated, but usually in our districts only a cold-weather field weed, rare and with no claim to be a native; native of Europe.

149. Arachis Linn.

Arachis hypogæa Linn.; H. S. 243; B. P. 415.

v. *Át he kalai, mat kalai, belati mung, chiné badam, mung phuli.*

In fields, but not at all commonly cultivated, and only near Calcutta; native of America.

150. Smithia Ait.

* **Smithia sensitiva** Ait.; H. S. 220; B. P. 417.

v. *Nala kashina, kalkashonda.*

In waste places, general.

151. Æschynomene Linn.

* **Æschynomene indica** Linn.; B. P. 418. *A. Roxburghii* H. S. 219.
v. *Sola, bháth sola.*
In ditches and marshes, everywhere.

* **Æschynomene aspera** Linn.; H. S. 219; B. P. 418.
v. *Bháth sola, phul sola.*
In ditches and marshes, general.

152. Uraria Desv.

* **Uraria picta** Desv.; H. S 220; B. P. 420.
v. *Sankar jata.*
In grassy glades and fields, general.

* **Uraria lagopoides** DC.; B. P. 420. *U. lagopodioides* H. S. 220.
v. *Golak chakúliya, gurkiya chakúlia.*
In grassy open spaces, general.

153. Lourea Neck.

Lourea vespertilionis Desv., H. S. 220; B. P. 421.
v. *Cham chika.*
Sometimes in gardens; occasionally in waste places in our districts; given by Voigt as occurring at Serampore, but with little, if any, claim to be native in our districts; native of S. E. Asia.

154. Desmodium Desv.

* **Desmodium triflorum** DC.; H. S. 223; B. P. 424.
v. *Kudaliya.*
Grassy open places and roadsides, everywhere.

* **Desmodium heterophyllum** DC.; H. S. 223; B. P. 424.
Goghat, Western Hughli district; also Serampore, according to Voigt.

* **Desmodium diffusum** DC.; B. P. 424. *D. elongatum* H. S. 222.
Grassy open places, very rare in our districts, and only west of the river Hughli.

Desmodium pulchellum Benth.; B. P. 424. *Dicerma pulchellum* H. S. 223.
v. *Juta salpani.*
Given by Voigt as occurring at Serampore; not impossibly, but requires verification; native of S. E. Asia.

* **Desmodium umbellatum** DC.; H. S. 221; B. P. 424.
Western Sundribuns.

* **Desmodium Cephalotes** Wall.; H. S. 221; B. P. 424.
Village-shrubberies and hedges, rare in our districts.

* **Desmodium polycarpum** DC.; H. S. 221; B. P. 425.
Waste places; very rare in our districts.

* **Desmodium gangeticum** DC.; H. S. 221; B. P. 425.
v. *Salpani.*
Open glades, dry grassy fields and waste places, everywhere.

* **Desmodium gyrans** DC., H. S. 222; B. P. 426.
v. *Gora chand, ban charal.*
Grassy glades and waste places, general but nowhere common. The Semaphore Plant.

155. Alysicarpus Neck.

* **Alysicarpus vaginalis** DC.; H. S. 224; B. P 428.
v. *Kurila.*
Drier grassy glades and fields, general
VAR. * **nummularifolia** Bak., B. P. 428.
v. *Kurila.*
Drier grassy glades and fields, everywhere.

* **Alysicarpus bupleurifolius** DC., H. S. 224, B. P. 428.
Drier grassy glades and fields, general.

* **Alysicarpus rugosus** DC., B. P. 428.
Drier grassy glades and fields; west of the river Hughli only and not common.
VAR.* **minor** Prain; B. P. 428.
Drier grassy glades, very rare in our districts.

156. Psoralea Linn.

* **Psoralea corylifolia** Linn.; H. S. 211, B. P. 429.
v. *Barachi, hakuchi.*
Waste places, sides of fields, roadsides; everywhere.

157. Cyamopsis DC.

Cyamopsis psoraloides DC.; H. S. 210, B. P. 429.
Occasionally cultivated in our districts, but not a general crop; native of Africa.

158. Indigofera Linn

* **Indigofera linifolia** Retz; H. S. 211; B. P. 431.
v. *Bhángra.*

Drier grassy glades and fields, roadsides and waste places, everywhere.

* **Indigofera trifoliata** Linn.; B. P. 431.

Waste places, not at all common in our districts, and only west of the river Hughli.

* **Indigofera viscosa** Lamk; H. S. 211; B. P. 432.

Grassy glades and waste places, west of the river Hughli; rare in our districts.

Indigofera trita Linn. f.; H. S. 212; B. P. 432.

Given by Voigt as occurring at Serampore, but almost certainly by mistake; the species occurs in Chota Nagpur but is rare even there; native of the drier parts of India.

159. Cassia Linn.

Cassia Fistula Linn.; B. P. 437. *Cathartocarpus Fistula* H. S. 247.

v. *Amaltás, sonálu, bandar lathi gach.*

In village-shrubberies, planted and self-sown; Western Sundribuns, but only in abandoned settlements; given by Voigt as occurring at Serampore, but hardly wild in our districts; native of S. E. Asia.

Cassia glauca Lamk; H. S. 249; B. P. 437.

In gardens generally; native of India and Indo-China.

Cassia occidentalis Linn.; H. S. 250; B. P. 437.

v. *Kalkashonda.*

In waste places, everywhere; native of America.

* **Cassia Sophera** Linn.; H. S. 248; B. P. 438.

v. *Kalkashonda.*

In waste places, everywhere.

VAR. * **purpurea** Voigt; H. S. 248; B. P. 438.

v. *Lal kalkashonda.*

In waste places; very rare.

Cassia bicapsularis Linn.; H. S. 248; B. P. 438.

In village-shrubberies and waste places, mostly nearly Calcutta; native of America.

Cassia auriculata Linn.; H. S. 250; B. P. 248.

In hedges often, sometimes in village-shrubberies; native of drier parts of India.

* **Cassia Tora** Linn.; H. S. 250; B. P. 438.

v. *Chakúnda.*

In waste places, everywhere.

Cassia alata Linn.; H. S. 249; B. P. 438.

v. *Dád mardán.*

In waste places, occasional; native of America.

Cassia siamea Lamk; B. P. 438.

In avenues, planted everywhere; native of Indo-China and Malaya.

* **Cassia mimosoides** Linn.; B. P. 439. *C. Wallichiana* H. S. 251. *C. angustissima* H. S. 251. *C. Leschenaultiana* H. S. 251. *C. tenella* H. S. 251.

Serampore according to Voigt; not collected by others.

* **Cassia Absus** Linn.; H. S. 251; B. P. 438.

Goghat, Western Hughli district.

160. Bauhinia Linn.

Bauhinia acuminata Linn.; H. S. 253; B. P. 441.

v. *Kanchan.*

Planted in gardens and elsewhere, but often in village-shrubberies and neglected gardens as if wild; native of S. E. Asia generally.

Bauhinia racemosa Lamk; H. S. 253; B. P. 441.

v. *Ban-ráj.*

Given by Voigt as occurring at Serampore, but almost certainly only planted, and very rarely so, anywhere in our districts; native of the drier parts of S. E. Asia.

Bauhinia tomentosa Linn.; H. S. 253; B. P. 441.

A favourite shrub in gardens; occasionally an escape; native of India.

Bauhinia variegata Linn; H. S. 253; B. P. 442.

v. *Rakto kamhar, swet kanchan,* according to the colour of the flowers, which vary a good deal but are never either entirely red or wholly white: *Swet kanchan* is also termed *kana ráj.*

A favourite tree in gardens; native of India, the Himalayas, and Indo-China.

Bauhinia purpurea Linn.; H. S. 254; B. P. 442. *B. triandra* H. S. 254.

v. *Deva kanchan, koiral.*

Often planted, but also very readily self-sown; native of India and Indo-China.

Bauhinia monandra Kurz; B. P. 442.

Occasionally planted; native of Madagascar.

161. Saraca Linn.

Saraca indica Linn.; B. P. 444. *Jonesia Asoca* H. S. 246.

v. *Asóka.*

Planted in gardens and near temples; occasionally self-sown; native of Indo-China.

Somewhat similar in appearance are *Amherstia nobilis* native of Indo-China, and several species of *Brownea*, American, planted by Europeans in gardens and on lawns, but not met with about villages or near temples.

162. Tamarindus Linn.

Tamarindus indica Linn.; H. S. 247; B. P. 444.

v. *Tintuli, tinturi, imli.*

Planted everywhere about villages and on roadsides; often self-sown; native of Africa.

163. Parkinsonia Linn.

Parkinsonia aculeata Linn.; H. S. 246; B. P. 446.

v. *Belati kikar.*

In native gardens and in village-shrubberies as if wild, everywhere.

164. Poinciana Linn.

Poinciana regia Boj.; H. S. 245; B. P. 446.

Planted on roadsides and in avenues everywhere; introduced from Mauritius.

165. Colvillea Boj.

Colvillea racemosa Boj.; H. S. 245; B. P. 447.

Planted occasionally in avenues; introduced from Mauritius.

166. Cæsalpinia Linn.

* **Cæsalpinia Bonducella** Flem.; B. P. 449. *Guilandina Bonduc* H. S. 244.

v. *Nata karanj.*

Western Sundribuns; village-shrubberies and hedges generally.

* **Cæsalpinia Nuga** Ait.; B. P. 449.

v. *Natua shingri lata.*

Western Sundribuns; plentiful.

Cæsalpinia pulcherrima Sw.; B. P. 449. *Poinciana pulcherrima* H. S. 245.

v. *Krishna chúra.*

In gardens everywhere, also as if wild in neglected gardens and village-shrubberies; native of S. E. Asia.

Cæsalpinia Sappan Linn.; H. S. 244; B. P. 449.

v. *Bakám, patang.*

Planted occasionally in our districts; given by Voigt as occurring at Serampore, but certainly not native; native of S. E. Asia.

Cæsalpinia coriaria Willd.; H. S. 245.

v. *Debi-dibi* (from the American name).

Sometimes planted, but not on a large scale, in our districts; native of West Indies.

Cæsalpinia sepiaria Roxb.; H. S. 245; B. P. 449.

A favourite hedge-plant near villages, especially west of the river Hughli; now often quite naturalized; native of the drier parts of India and Indo-China.

167. Parkia R. Br.

Parkia biglandulosa W. & A.; H. S. 257; B. P. 451.

Planted in avenues; native of S. E. Asia.

168. Neptunia Lour.

* **Neptunia oleracea** Lour.; B. P. 454. *Desmanthus natans* H. S. 258.

v. *Pani najak.*

In marshes, general.

Neptunia plena Benth.; B. P. 454. *Desmanthus punctatus* H. S. 259.

v. *Belati pani najak.*

In gardens, occasionally; on foreshores of river Hughli near Calcutta and Howrah; naturalized, rare; native of America.

169. Desmanthus Willd.

Desmanthus virgatus Willd.; H. S. 258; B. P. 455.

In waste places about Calcutta, rather uncommon, but quite naturalized; native of America.

170. Mimosa Linn.

Mimosa pudica Linn.; H. S. 257; B. P. 456.

v. *Najak.*

Roadsides and waste places, everywhere: looks as if a native, but probably originally introduced from America.

* **Mimosa rubricaulis** Lamk; H. S. 257; B. P. 456.

v. *Kuchi kanta, shiah kanta.*

Goghat, western part of Hughli district; also given by Voigt as occurring at Serampore.

171. Acacia Willd.

* **Acacia Suma** Ham.; H. S. 260; B. P. 458.

v. *Sau kanta, shai kanta.*

Hughli district, in village shrubberies, occasional.

* **Acacia catechuoides** Wall. B. P. 458. *A Catechu* H. S. 260. *A. Sundra* H. S. 260.

v. *Khayar.*

In village-shrubberies, general.

Acacia Farnesiana Willd.; B. P. 458. *Vachellia Farnesiana* H. S. 264.

v. *Guhiya bábul.*

Planted very generally; given by Voigt as occurring at Serampore, but certainly not wild in our districts; native of Western India and the Orient.

* **Acacia arabica** Willd.; H. S. 262; B. P. 458.

v. *Bábul.*

In fields and about villages, everywhere; sometimes planted.

* **Acacia tomentosa** Willd.; H. S. 262; B. P. 458.

v. *Salsain bábul.*

In village-shrubberies, general.

Acacia concinna DC.; B. P. 458. *A. rugata* H. S. 263.

v. *Ban ritha, ritha.*

Given by Voigt as occurring at Serampore; but probably only planted, which it occasionally is near villages throughout our districts; native of S. E. Asia.

172. Albizzia Duraz.

Albizzia Lebbek Benth.; B. P. 461. *Acacia Sirissa* H. S. 261.

v. *Sirissa.*

In avenues, on roadsides, and near villages; everywhere planted; native of Sub-Himalayan forests and of Indo-China.

Albizzia procera Benth.; B. P. 461.

v. *Koroi.*

Planted in avenues, now quite naturalized in village-shrubberies near Calcutta; native of drier parts of India and Indo-China.

Albizzia lucida Benth.; B. P. 461.

v. *Sil koroi.*

Planted, but also often self-sown in village-shrubberies near Calcutta; native of lower Himalayan slopes and of moister parts of Indo-China.

173. Leucæna Benth.

Leucæna glauca Benth.; B. P. 455. *Mimosa glauca* H. S. 262.

Hedges, river banks, thickets and village shrubberies, everywhere; native of America.

In Voigt's time only planted in gardens; now one of the commonest shrubs in the neighbourhood of Calcutta.

174. Pithecolobium Mart.

Pithecolobium dulce Benth.; B. P. 462. *Inga dulcis* H. S. 257.

v. *Belati ámli, dekhani bábul.*

Planted everywhere, but also self-sown and very plentiful in village-shrubberies; native of America.

In Voigt's time only cultivated; now a very common denizen of village woods, almost as plentiful as *Guazuma tomentosa*: introduced to India by way of the Philippines and Malaya.

175. Enterolobium Mart.

Enterolobium Saman Prain; B. P. 463.

v. *Belati sirissa.*

Planted in avenues and on roadsides, everywhere; occasionally self-sown; native of America. The Rain Tree.

XXXVII.—ROSACEÆ.

176. Rosa Linn.

Rosa involucrata Roxb.; H. S. 194; B. P. 466.

v. *Ban gulab.*

In gardens, not common: not wild apparently within our districts, but plentiful, wild, in marshes in North and East Bengal.

Rosa centifolia Linn.; H. S. 194; B. P. 467.

v. *Basaraiya gulab.*

In gardens, general; native of Europe.

Rosa indica Linn.; H. S. 194; B. P. 467.

v. *Kanta gulab.*

In gardens, everywhere; native of China.

177. Eriobotrya Lindl.

Eriobotrya japonica Lindl.; H. S. 198; B. P. 468.

Cultivated, sparingly, in gardens; native of China. The Loquat.

The Peach is also sparingly cultivated but does not produce fruit so freely as the Loquat.

XXXVIII.—CRASSULACEÆ.

178. Bryophyllum Salisb.

Bryophyllum calycinum Salisb.; H. S. 268; B. P. 470.
v. *Kop-pata.*
In waste places and thickets, everywhere; native of Moluccas, first brought to Calcutta in 1799.

179. Kalanchoë Adans.

* **Kalanchoë laciniata** DC.; H. S. 268; B. P. 471.
v. *Hem ságar.*
Hughli district, in waste places, rare.

XXXIX.—DROSERACEÆ.

180. Drosera Linn

* **Drosera Burmanni** Vahl; H. S. 79; B. P. 472.
Goghat, Western Hughli district.

181. Aldrovanda Linn.

* **Aldrovanda vesiculosa** Linn.; H. S. 79; B. P. 472.
v. *Malacca jhángi.*
Jhils south of Calcutta, very rare; has been collected by Roxburgh, T. Thomson, and Kurz.

XL.—HALORAGEÆ.

182. Myriophyllum Linn.

* **Myriophyllum tuberculatum** Roxb.; H. S. 35; B. P. 474. *M. verticillatum* H. S. 35, not of Linn.
v. *Jhángi.*
In marshes east of the river Hughli, very common; west of the Hughli, very rare.

* **Myriophyllum indicum** Willd.; H. S. 35; B. P. 474. *M. tetrandrum* H. S. 35.
v. *Jhángi.*
In marshes and ditches; everywhere.

XLI.—RHIZOPHORACEÆ.

183. Rhizophora Linn.

* **Rhizophora mucronata** Lamk; H. S. 41; B. P. 475.
v. *Khamo, bhora.*
Western Sundribuns.

* **Rhizophora conjugata** Linn.; H. S. 41; B. P. 475.
v. *Khamo, bhora.*
Western Sundribuns.

184. Ceriops Arn.

* **Ceriops Roxburghiana** Arn.; H. S. 41; B. P. 476.
v. *Gorán.*
Western Sundribuns.

185. Kandelia W. & A.

* **Kandelia Rheedei** W. & A.; H. S. 41; B. P. 476.
v. *Gória.*
Western Sundribuns.

186. Bruguiera Lamk.

* **Bruguiera gymnorhiza** Lamk; B. P. 477. *B. Rheedei* H. S. 41.
v. *Kankra.*
Western Sundribuns.

Bruguiera parviflora W. & A.; H. S. 41.
Sundribuns, according to Roxburgh and Voigt, but needs confirmation; native of other S. E. Asian shores.

XLII.—COMBRETACEÆ.

187. Terminalia Linn.

Terminalia Catappa Linn.; H. S. 36; B. P. 481.
v. *Deshi badám.*
Planted on roadsides and in avenues; native of Malaya.

188. Lumnitzera Willd.

Lumnitzera racemosa Willd.; H. S. 39; B. P. 484.
v. *Kripa.*
Western Sundribuns.

189. Quisqualis Linn.

Quisqualis indica Linn.; H. S. 39; B. P. 484.
In gardens, everywhere; native of Malaya.

XLIII.—MYRTACEÆ.

190. Psidium Linn.

Psidium Guyava Linn.; B. P. 487. *P. pyriferum* H. S. 46. *P. pomiferum* H. S. 46.
v. *Piyár.*

Planted, and semi-spontaneous in village-shrubberies, everywhere; native of America.

191. Eugenia Linn.

Eugenia malaccensis Linn.; H. S. 47; B. P. 490.

v. *Malacca jamrúl*.

In native gardens, frequent; native of Malaya.

Eugenia javanica Lamk.; *E. alba* H. S. 48.

v. *Jamrúl*.

In native gardens, frequent; native of Malaya. Voigt by an oversight gives the vernacular name as *Amrúl*, which is in our districts, used only for *Oxalis corniculata*.

Eugenia Jambos Linn.; H. S. 47; B. P. 490.

v. *Goláb jámb*.

In native gardens, often; native of India.

Eugenia aquea Roxb.; H. S. 47; B. P. 490.

v. *Jambo*.

In gardens, often; native of Malaya.

Eugenia Jambolana Lamk; H. S. 49, B. P. 491.

v. *Kála jámb, jámb*.

Planted generally, occasionally semi-spontaneous, native of India.

VAR. **caryophyllifolia** B. P. 491. *E caryophyllifolia* H. S. 49.

v. *Chhota jámb*.

Given by Voigt as occurring at Serampore, not impossibly, but needs verification; is plentiful to the west of our districts; native of India.

192. Barrington Forst.

* **Barringtonia racemosa** Bl.; H. S. 51; B. P. 493.

v. *Samundra*.

Western Sundribuns.

* **Barringtonia acutangula** Gærtn.; H. S. 51; B. P. 493.

v. *Hidjal*.

Near river banks, general.

XXIV.—LYTHRACEÆ.

193. Ammannia Linn.

* **Ammannia rotundifolia** Ham.; B. P. 500. *Ameletia rotundifolia* H. S. 130.

Edges of wet rice-fields, sides of ditches; very rare.

* **Ammannia peploides** Spreng.; B. P. 500. *Ameletia indica* H. S. 130.
Edges of wet rice-fields, sides of ditches; frequent.
* **Ammannia pygmæa** Kurz; B. P. 500.
Damp paths and open waste places, general.
* **Ammannia pentandra** Roxb.; B. P. 500. *Rotala Roxburghiana.* H. S. 129.
A weed of wet places; general.
VAR. * **fimbriata** Wight, B. P. 500.
A weed of wet places; general.
* **Ammannia baccifera** Linn.; B. P. 500. *A. vesicatoria* H. S. 130. *A. indica* H. S 130.
v. *Dád mári.*
A weed of wet places; everywhere.
* **Ammannia salicifolia** Monti; B. P. 501.
v. *Dád mári.*
A weed of wet places; 24-Pergunnahs only.
* **Ammannia multiflora** Roxb.; H. S. 130; B. P. 501.
A weed of wet places, general

194. Woodfordia Salisb.

Woodfordia floribunda Salisb.; B. P. 502. *Grislea tomentosa* H. S. 131.
v. *Dhai phul, dhás, dhaní.*
Given by Voigt as occurring at Serampore, but there certainly only planted; it *may* occur in the extreme west of Hughli district; native of S E. Asia.

195. Lawsonia Linn.

Lawsonia alba Lamk; H. S. 131; B. P. 502.
v. *Mehndi.*
Planted in hedges, chiefly in Hughli district; native of the Orient. The Henna.

196. Lagerstræmia Linn.

Lagerstræmia indica Linn.; H. S. 131; B. P. 504.
v. *Telinga china.*
In gardens everywhere, in hedges or on lawns; native of S. E. Asia.
Lagerstræmia Flos-Reginæ Retz; B. P. 504. *L. Reginæ* H. S. 131.
v. *Jarúl.*
Planted on roadsides and in avenues; native of Indo-China and India.

197. Sonneratia Linn. f.

***Sonneratia apetala** Ham.; H. S. 50; B. P. 505.
*v. *Keóra.*
Western Sundribuns and banks of river and creeks as far north as Uluberia and the Salt-lakes of Calcutta.

***Sonneratia acida** Linn. f.; H. S. 50; B. P. 505.
v. *Óra.*
Western Sundribuns.

198. Punica Linn.

Punica Granatum Linn.; H. S. 50; B. P. 505.
v. *Dalím.*
Occasionally in native gardens about Calcutta; native of Africa. The Pomegranate.

XLV.—ONAGRACEÆ.

199. Jussiæa Linn.

***Jussiæa repens** Linn.; H. S. 33; B. P. 507.
v. *Kesara-dám.*
Floating on ponds or ditches, or creeping on their muddy margins; everywhere.

*** Jussiæa suffruticosa** Linn.; B. P. 507. *J. villosa* H. S. 33.
v. *Lál banlanga.*
A weed of moist places; general.

200. Ludwigia Linn.

***Ludwigia parviflora** Roxb.; H. S. 34; B. P. 507.
v. *Banlanga.*
A weed of wet rice-fields, Hughli district.

201. Trapa Linn.

***Trapa bispinosa** Roxb.; H. S. 35; B. P. 508.
v. *Singhára, pani phál.*
Floating on ponds, everywhere. The Water Chestnut.

XLVI.—TURNERACEÆ.

202. Turnera Linn.

*** Turnera ulmifolia** Linn.; B. P. 511. *T. ulmifolia* VAR. *angustifolia* H. S. 85.

In waste places, everywhere; originally an escape from gardens, but now thoroughly established throughout our districts; native of America.

Voigt gives *T. trioniflora* as similarly domesticated about Serampore, but though there are parts of India, *e.g.* Tenasserim, where this species also is quite naturalized, the writer has never met with it in a wild state in our districts.

XLVII.—PASSIFLORACEÆ.

203. Passiflora Linn.

Passiflora suberosa Linn.; H. S. 80; B. P. 512.

In hedges and thickets throughout our districts; thoroughly naturalized everywhere; native of America.

Passiflora fœtida Linn.; H. S. 81; B. P. 512.

In hedges and thickets about Shibpur, Serampore, Chandernagore, Hughli; apparently quite naturalized; native of America.

Both these species are originally escapes from gardens; both appear to have become domesticated since Voigt's time, but the first of the two, which is now invading the Sundribuns, must certainly be reckoned one of the wild plants of our area. Various other species of *Passiflora* are cultivated; at least two of them have been found by the writer naturalized in hedges and thickets in Northern Bengal and no doubt in time others will establish themselves in our districts, and may, indeed, have already casually done so.

204. Carica Linn.

Carica Papaya Linn.; H. S. 83; B. P. 514.

v. *Pippiya* (from the American name).

Generally cultivated, but often also subspontaneous in village-shrubberies. The Papaw.

XLVIII.—CUCURBITACEÆ.

205. Trichosanthes Linn.

Trichosanthes dioica Roxb.; H. S. 58; B. P. i. 517.

v. *Patal.*

Cultivated and occasionally as if wild in village-shrubberies; native of India.

***Trichosanthes cucumerina** Linn.; H. S. 57; B. P. i. 518. *T. lobata* H. S. 58.

v. *Ban chichinga.*

In hedges and thickets; sometimes also cultivated.

Trichosanthes anguina Linn.; H. S. 57; B. P. i. 518.
v. *Chichinga.*
Cultivated everywhere; native of S. E. Asia.

* **Trichosanthes palmata** Roxb.; B. P. i. 518. *T. bracteata* H. S. 58.
v. *Makal.*
In village-shrubberies and hedges, common.

206. Gymnopetalum Arn.

* **Gymnopetalum cochinchinense** Kurz; B. P. i. 518.
Hedges and thickets near Calcutta; not common.

207. Lagenaria Ser.

Lagenaria vulgaris Ser.; H. S. 57; B. P. i. 519.
v. *Kaddu, kodu, laú.*
Cultivated about villages; sometimes as if wild; native of India.

208. Luffa Cav.

* **Luffa graveolens** Roxb.; H. S. 57; B. P. i. 520.
North-Western Sundribuns, at Jatta.

Luffa ægyptiaca Mill.; B. P. i. 520; *L. pentandra* H. S. 56. *L. clavata* H. S. 57.
v. *Dhundul.*
Cultivated about villages, but often also as if wild; native of Eastern Hemisphere.

Luffa acutangula Roxb.; B. P. i. 520. *L. fœtida* H. S. 56.
v. *Jhinga.*
Cultivated generally, near villages; native of India.

* **Luffa amara** Roxb.; H. S. 57: B. P. i. 520.
v. *Tita-jhinga, tita dhundul.*
Serampore, according to Voigt; not improbably, but the record needs confirmation.

209. Benincasa Savi.

Benincasa cerifera Savi; H. S. 57; B. P. i. 521.
v. *Chal kamra.*
Cultivated generally, near villages; native of S. E. Asia.

210. Momordica Linn.

Momordica Charantia Linn.; H. S. 56; B. P. i. 521.
v. *Karéla.*
Cultivated everywhere; sometimes as if wild in village-shrubberies; native of S. E. Asia.

VAR. **muricata** W. & A.; H. S. 56.

v. *Úchhiya.*

Cultivated everywhere; much more plentiful than the *karéla;* native of S. E. Asia.

* **Momordica dioica** Roxb.; H. S. 56; B. P. i. 521.

In hedges and thickets, everywhere.

* **Momordica cochinchinensis** Spreng.; H. S. 56; B. P. i. 522.

v. *Gol kákra.*

Hedges and thickets, especially about Calcutta.

211. Cucumis Linn.

* **Cucumis trigonus** Roxb.; H. S. 59; B. P. i. 522. *C. pubescens.* H. S. 59.

v. *Ban-gamak.*

Waste places, especially west of river Hughli.

Cucumis Melo Linn.; H. S. 58; B. P. i. 522. *C. utilissimus* H. S. 58.

v. *Kharbúz* (*C. Melo*, the sweet); *Kákri* (*C. utilissimus*, the vegetable).

Cultivated everywhere; native of the Orient.

Cucumis sativus Linn.; H. S. 58; B. P. i. 523.

v. *Khirá.*

Cultivated about Calcutta; native of the Orient.

212. Citrullus Schrad.

Citrullus vulgaris Schrad.; B. P. i. 523. *C. cucurbita* H. S. 55.

v. *Tarbúz.*

Cultivated about Calcutta; native of the Orient.

213. Cephalandra Schrad.

* **Cephalandra indica** Naud.; B. P. i. 523. *Coccinia grandis* H. S. 59.

v. *Tela kucha, bhimba.*

Hedges and thickets, everywhere.

214. Cucurbita Linn.

Cucurbita Pepo DC.; B. P. i. 524.

v. *Kúmra.*

Cultivated occasionally; native of the Orient.

Cucurbita maxima Duch.; B. P. i. 524.

v. *Mitha kaddu.*

Cultivated occasionally; native of the Orient.

Cucurbita moschata Duch.; B. P. i. 524. *C. maxima* H. S. 59.
v. *Safra kúmra.*
Cultivated fairly generally: native of the Orient.

215. Mukia Arn.

* **Mukia scabrella** Arn.; H. S. 55; B. P. i. 525.
v. *Agu makhi, hilári.*
Hedges, thickets and waste places, everywhere.

216. Bryonia Linn.

* **Bryonia laciniosa** Linn.; H. S. 55; B. P. i. 526.
v. *Mala.*
Village-shrubberies, not common.

217. Zehneria Endl.

* **Zehneria umbellata** Thev.; B. P. i. 527. *Karivia umbellata* H. S. 55.
v. *Kudári, rakhal susa.*
Hedges and thickets, general, but not very common.

XLIX.—CACTACEÆ.

218. Cereus DC.

Cereus pterogonus Lemaire.
Planted as a fence, especially in the Hughli district; occasionally as if wild in waste places, *e.g.* in the Goghat sub-division; native of America.

219. Opuntia Mill.

Opuntia Dillenii Haw.; H. S. 62; B. P. i. 531.
v. *Nág phana.*
In waste places and by roadsides, quite naturalised in many places; native of America.

L.—FICOIDEÆ.

220. Sesuvium Linn.

* **Sesuvium Portulacastrum** Linn.; B. P. i. 532. *S. repens* H. S. 323.
Western Sundribuns, on muddy river banks, general.

221. Trianthema Linn.

* **Trianthema monogynum** Linn.; B. P. i. 533. *T. obcordatum* H. S. 173.
v. *Sabuni; gadi-bani.*

Waste places and garden ground, general.

Voigt records also *T. decandrum* from Serampore, but says it is rare; he restricts the name *gada-bani* to *T. decandrum*. The writer has never found any 2-styled species of *Trianthema* in our area and believes that the two vernacular names are applied to *T. monogynum*. There is nothing, however, to prevent the occurrence of both *T. decandrum* and *T. pentandrum* alongside of *T. monogynum* in Lower Bengal and they should be looked for; they are quite like *T. monogynum* but may be at once distinguished by their 2 styles, *T. monogynum* having but 1 style.

Voigt further reports *T. crystallinum* from Serampore, but Clarke in Hooker's *Flora of British India* says that this species does not occur in Bengal. in this it is almost certain that Clarke is right and that Voigt's supposed *T. crystallinum* was only a state of *T. monogynum*.

222. Mollugo Linn.

* **Mollugo stricta** Linn.; B P. i. 533. *M. pentaphylla* H. S. 180. *M. triphylla* H. S. 180.

v. *Khát papara, jul papara.*

A weed of river-foreshores and sand-banks.

* **Mollugo Spergula** Linn.; H. S. 180, B. P i. 533.

v. *Ghimi shák.*

A field weed; everywhere, common.

* **Mollugo hirta** Thunb.; B. P. i. 533. *Glinus dictamnoides* H. S. 65.

Waste places and dry fields, everywhere.

This appears to have no distinctive vernacular name in spite of its being a common plant; both by Roxburgh and by Voigt, it is quoted simply as *Dusera-sag* or *Dusra-suk*, "another pot-herb."

LI.—UMBELLIFERÆ.

223. Hydrocotyle Linn.

* **Hydrocotyle rotundifolia** Roxb.; H. S. 20; B. P. i. 535.

A weed of gardens about Calcutta.

* **Hydrocotyle asiatica** Linn.; H. S 20; B. P. i. 535.

v. *Brahma manduki, thalkuri.*

Grassy glades and moist shady places, general.

224. Carum Linn.

Carum Roxburghianum Benth.; B. P. i. 536. *Pimpinella involucrata* H. S. 21.

v. *Chanu, rajani, radhani.*

Everywhere cultivated; native of India.

Carum copticum Benth.; B. P. i. 536. *Ptychotis, Ajowan* H. S. 21.
v. *Juráni, byro-jowán.*
Everywhere cultivated; native of India.

225. Fœniculum Adans.

Fœniculum vulgare Gærtn.; H. S. 22; B. P. i. 537. *F. Panmori* H. S. 22.
v. *Pan mohuri.*
Sparingly cultivated, mostly in Hughli district; native of the Orient.

226. Seseli Linn.

* **Seseli indicum** W. & A.; B. P. i. 538. *Cnidium diffusum* H. S. 22.
v. *Ban jowán.*
A field weed, occasional only.

227. Œnanthe Linn.

* **Œnanthe stolonifera** Wall.; H. S. 21; B. P. i. 539.
v. *Pan turási.*
In and around ponds and ditches, general.

* **Œnanthe benghalensis** Benth.; B. P. i. 539. *Dasyloma bengalense* H. S. 22.
Moist shady spots near water, common.

228. Peucedanum Linn.

Peucedanum Sowa Kurz; B. P. i. 540. *Anethum Sowa* H. S. 22.
v. *Salpha, sowa.*
Cultivated generally; native of India.

229. Coriandrum Linn.

Coriandrum sativum Linn.; H. S. 23; B. P. i. 540.
v. *Dhané.*
Cultivated sparingly, especially in the Hughli district; native of the Orient.

230. Daucus Linn.

Daucus Carota Linn.; H. S. 23; B. P. i. 541.
v. *Gájar.*
Cultivated occasionally; native of Europe and the Orient.

LII.—ARALIACEÆ.

231. Panax Linn.

Panax fruticosum Linn.; H. S. 24; B. P. i. 543.
In gardens generally; native of Malaya.

LIII.—CORNACEÆ.

232. Alangium Lamk.

* **Alangium Lamarckii** Thw.; B. P. i. 543. *A. decapetalum* H. S. 40.
v. *Ankúra.*
In village-shrubberies, general.

COROLLIFLORÆ.

LIV.—RUBIACEÆ.

233. Anthocephalus A. Rich.

Anthocephalus Cadamba Miq.; B. P. i. 551. *Nauclea Cadamba* H. S. 375.
v. *Kadam.*
Planted in avenues, on roadsides and near villages; sometimes spontaneous in village-shrubberies; native of S. E. Asia.

234. Adina Salisb.

Adina cordifolia Hook. f.; B. P. i. 532. *Nauclea cordifolia* H. S. 375.
v. *Káli kadam, da kóm, petpuria, bangka.*
Planted occasionally on roadsides and about village tanks; native of drier parts of India and Indo-China.

235. Stephegyne Korth.

* **Stephegyne parvifolia** Korth.; B. P. i. 552. *Nauclea parvifolia* H. S. 375.
Hughli district, Goghat sub-division, wild; also reported by Voigt from Serampore but there probably only planted, as it occasionally is in other places west of the Hughli.

236. Wendlandia Bartl.

* **Wendlandia exserta** DC.; H. S. 383; B. P. i. 554.
v. *Chilkiya.*
Hughli district, Goghat sub-division, wild.

237. Dentella Forst.

*** Dentella repens** Forst.; H. S. 383; B. P. i. 555.
v. *Bhumi pát.*
Damp foot-paths and shady places, general.

238. Oldenlandia Linn.

*** Oldenlandia crystallina** Roxb.; B. P. i. 559. *Hedyotis pumila* H. S. 384.
v. *Panki.*
Waste places, general.

*** Oldenlandia diffusa** Roxb.; B. P. i. 559. *Hedyotis dichotoma* H. S. 384.
Waste places and thickets, general.

*** Oldenlandia corymbosa** Linn.; B. P. i. 559. *Hedyotis Burmanniana* H. S. 384.
v. *Khet pápra.*
Waste places, not uncommon.

*** Oldenlandia paniculata** Linn.; B. P. i. 560. *Hedyotis racemosa* H. S. 384.
v. *Gándha bhaduli.*
Edges of rice-fields and moist places, general.

239. Hamelia Jacq.

Hamelia patens Jacq.; H. S. 385; B. P. i. 563.
In gardens and on lawns; also now often sub-spontaneous near villages about Calcutta; native of America.

240. Gardenia Linn.

Gardenia florida Linn.; H. S. 377; B. P. i. 565.
v. *Gándha ráj.*
In gardens everywhere; native of China.

241. Randia Linn.

Randia uliginosa DC.; H. S. 381; B. P. i. 566.
v. *Pirálo.*
Planted occasionally; given by Voigt as occurring at Serampore, but almost certainly not wild anywhere in our districts; native of India and common in West Bengal beyond our limits.

*** Randia dumetorum** Lamk; H. S. 381; B. P. i. 567.
v. *Menphál, madan.*
Hughli district, Goghat sub-division, wild; Western Sundribuns, in old cleanings, naturalized; sometimes also in native gardens, planted.

242. Hyptianthera W. & A.

* **Hyptianthera stricta** W. & A.; H. S. 382; B. P. i. 568.
In thickets, west of the river Hughli; rare.

243. Pavetta Linn.

Pavetta indica Linn.; H. S. 391; B. P. i. 569.
v. *Kukur chára.*
Reported by Voigt as occurring at Serampore, but almost certainly only planted, as it sometimes is elsewhere.
VAR. * **tomentosa** B. P. i. 570. *Pavetta tomentosa* H. S. 392.
v. *Jui.*
Hedges, village-shrubberies and waste places, general.

244. Ixora Linn.

* **Ixora parviflora** Vahl; H S. 390; B P. i. 571.
v. *Gandhal rangan.*
Hughli district, Goghat sub-division, in waste places; elsewhere general in village-shrubberies.
* **Ixora undulata** Roxb.; H. S. 390, B. P. i. 571.
v. *Palaka jui.*
In village-shrubberies, general.
Ixora coccinea Linn. VAR. **Bandhuca**; B. P. i. 571. *I. Bandhuca* H. S. 389
v. *Rangan.*
In gardens and on lawns, everywhere; native of India and Indo-China.
Ixora stricta Roxb.; H. S 389; B. P. i. 571.
In gardens, generally; native of China.

245. Coffea Linn.

Coffea bengalensis Roxb.; H. S. 392; B. P. i. 572.
Recorded by Voigt from Serampore, but almost certainly not wild in our districts; plentiful in Chota Nagpur.

246. Morinda Linn.

* **Morinda bracteata** Roxb.; H. S. 386; B. P. i. 573. *M. exserta* H. S. 386.
v. *Haldi kúnch, ronch, hardi, ban ách.*
Western Sundribuns and along the banks of the Hughli as far north as Calcutta; occasionally also in village-shrubberies near the river.

* **Morinda citrifolia** Linn.; H. S. 385; B. P. i. 573. *M. tinctoria?* H. S. 386.
v. *Ách.*
Goghat sub-division, Hughli district. *M. tinctoria* is reported by Voigt from Serampore, but this record is doubtful; possibly *M. citrifolia* may have been the species seen; in any case it was probably only planted.

247. Canthium Lamk.

Canthium parvifolium Roxb.; H. S. 388; B. P. i. 574.
Village-shrubberies, but only near Calcutta and only occasionally: this was introduced from Chittagong in 1814 and had not flowered up to 1845; it is interesting to find it now becoming naturalized.

248. Vangueria Juss.

Vangueria edulis Vahl; H. S. 386; B. P. i. 575.
Cultivated occasionally in native gardens; introduced from Madagascar.

* **Vangueria spinosa** Roxb.; H. S. 386; B. P. i. 575.
v. *Moyena.*
In village-shrubberies, not uncommon.

249. Pæderia Linn.

* **Pæderia fœtida** Linn.; H. S. 388; B. P. i. 578.
v. *Gándha bhadulia.*
Hedges and thickets, general.

250. Knoxia Linn.

Knoxia corymbosa Willd.; H. S. 395; B. P. i. 578.
Reported from Serampore by Voigt; the record requires verification.

251. Spermacoce Linn.

* **Spermacoce hispida** Linn.; H. S. 394; B. P. i. 580.
Waste places, but only west of the Hughli river; not uncommon.

LV.—COMPOSITÆ.

252. Centratherum Cass.

* **Centratherum anthelminticum** O. Kuntze; B. P. i. 589. *Vernonia anthelmintica* H. S. 405.
v. *Somrój.*
Rubbish heaps, rare, possibly not truly native of our area; plentiful to the west of our district.

253. Vernonia Schreb.

* **Vernonia cinerea** Less.; H. S. 405; B. P. i. 590.
v. *Kok-shim, kála jhira.*
Fields, roadsides and waste places, everywhere.

254. Elephantopus Linn.

* **Elephantopus scaber** Linn.; H. S. 406; B. P. i. 590.
v. *Samdulun.*
Waste places, open glades and dry fields, general.

255. Adenostemma Forst.

* **Adenostemma viscosum** Forst; B. P. i. 591. *A. leiocarpum* H. S. 406.
v. *Buro keshuti.*
Waste places and rubbish heaps, occasional.

256. Ageratum Linn.

Ageratum conyzoides Linn.; H. S. 406; B. P. i. 591.
v. *Oochunti*
Fields, open glades, waste places, everywhere; originally American.

257. Eupatorium Linn.

Eupatorium Ayapana Vent; B. P. i 592. *E. triplinerve* H. S. 407.
v. *Ayapana* (from its American name).
Commonly cultivated in native gardens about Calcutta; native of Brazil.

Eupatorium odoratum Linn., B. P. i. 592.
Occasionally in native gardens about Calcutta; introduced from West Indies

258. Cyathocline Cass.

* **Cyathocline lyrata** Cass.; B. P. i. 593.
Hughli district, Goghat sub-division, in waste places.

259. Grangea Forsk.

* **Grangea maderaspatana** Poir.; H. S. 409; B. P. i. 593.
v. *Namáti.*
Roadsides, dry fields and waste places, general.

260. Blumea DC.

* **Blumea amplectens** DC.; B. P. i. 596.
Moist fields east of the Hughli and south of Calcutta, also in clearings in the North-Western Sundribuns.

* **Blumea bifoliata** DC.; H. S 410; B. P. i. 597.
Dry grassy places and hedges, mostly about Calcutta, Howrah, and other towns near the Hughli.

* **Blumea Wightiana** DC.; B. P. i. 597.
Drier grassy glades, everywhere.

* **Blumea glomerata** DC.; B. P. i. 598.
Waste places, occasional only and possibly not truly native in our districts, plentiful in most parts of Bengal.

* **Blumea lacera** DC., H. S. 410; B. P. i. 598
v. *Kukur sunga, bara koksing, buro kukshim, bara suksunga.*
Drier grassy glades, general.

* **Blumea laciniata** DC., H. S 410; B. P. i 598.
Drier grassy glades, especially west of the river Hughli.

* **Blumea membranacea** DC.; B. P. i. 598. *Conyza diffusa* H. S. 409.
Grassy places, everywhere.

261. Laggera Sch.-Bip.

* **Laggera flava** Benth.; B. P. i. 599.
Dry grassy places, but only west of the Hughli river, and rare in our districts.

* **Laggera aurita** Sch.-Bip., B. P. i. 599. *Blumea aurita* H. S. 410.
Dry fields, roadsides, hedges, general.

262. Pluchea Cass.

* **Pluchea indica** Less.; H. S. 410; B. P. i. 600.
v. *Munjhu rukha, kukronda.*
Western Sundribuns, plentiful.

263. Sphæranthus Linn.

* **Sphæranthus africanus** Linn.; B. P. i. 601. *S. hirtus* H. S. 409.
v. *Mundi.*
Swampy places and rice-fields especially south of Calcutta and in cleanings in the North-Western Sundribuns; very rare west of the Hughli.

* **Sphæranthus indicus** Linn.; B. P. i. 601. *S. mollis* H. S. 409.
v. *Chaggul nadi, ghák-nundi, murmuria.*
Dry rice-fields, very plentiful west of the river Hughli; east of the river rather rare.

264. Athroisma DC.

* **Athroisma laciniatum** [illegible] B. P. i. 601.
Dry rice-fields, occasional.

265. Gnaphalium Linn.

*** Gnaphalium luteo-album** Linn. VAR. **pallidum** B. P. i. 602.
Dry fields west of the Hughli and north of Calcutta.

*** Gnaphalium indicum** Linn ; H. S. 421, B. P. i. 602.
Dry fields, gardens, and places where water has lodged during the rains, general.

*** Gnaphalium pulvinatum** DC., B. P. i. 603.
Hughli district, Goghat sub-division.

266. Cæsulia Roxb.

*** Cæsulia axillaris** Roxb.; H. S. 411; B. P. i. 603.
Rice-fields and wet places, everywhere.

267. Emilia Cass.

*** Emilia sonchifolia** DC.; H S. 421; B. P. i. 605.
v. *Sadi modi.*
Shady places, general.

268. Hymenantherum Cass.

Hymenantherum tenuifolium Cass.
In gardens general, readily self-sown on dry paths and in dry waste places; native of Mexico.

269. Tagetes Linn.

Tagetes patula Linn.; H. S 416, B. P. i. 607.
v. *Chhota genda.*
In gardens everywhere, often also as an escape, native of Mexico.

Tagetes erecta Linn.; H. S. 417.
v. *Buro genda.*
In gardens generally, sometimes also as an escape; native of Mexico.

270. Xanthium Linn.

*** Xanthium strumarium** Linn.; B. P. i. 607. *X. orientale* H. S. 413.
v. *Ban okra, chhota gokhru.*
River banks, sides of ponds and ditches, waste places and rubbish heaps, general.

Xanthium spinosum Linn.; B. P. i. 608.
Waste places, occasional; very abundant at Canning Town along the Matla river; introduced from S. E.

271. Lagascea Cav.

Lagascea mollis Cav.; H. S. 406; B. P. i. 608.

Garden ground, waste places and river banks about Calcutta, a very frequent weed; introduced from the West Indies.

272. Zinnia Linn.

Zinnia pauciflora Linn.; H. S. 413; B. P. i. 609.

In gardens everywhere; sometimes also sub-spontaneous; native of Mexico.

Other species of *Zinnia*, and especially *Z. elegans*, are generally cultivated in gardens both Native and European, but the writer has not observed this tendency to become naturalised in any save *Z. pauciflora*.

273. Enhydra Lour.

* **Enhydra fluctuans** Lour.; B. P. i. 610. *E. Hingcha* H. S. 416.

v. *Hingcha*.

Edges of ponds and ditches and sometimes partly floating; everywhere.

274. Eclipta Linn.

* **Eclipta alba** Hassk.; B. P. i. 610. *E. erecta* H. S. 411.

v. *Kesari, keshuti*.

Fields, roadsides, waste places everywhere.

275. Wedelia Jacq.

* **Wedelia calendulacea** Less.; H. S 414; B. P. i. 611.

v. *Kesaráj, bhimráj*.

Wet places, banks of ponds, ditches and khals; general.

* **Wedelia scandens** Clarke; B. P. i. 612. *Wollastonia scandens* H. S. 414.

v. *Bhimráj*.

Western Sundribuns, climbing on bushes along river banks and at sea-face, very common; extends along banks of Hughli almost to Calcutta.

276. Tithonia Desf.

Tithonia tagetiflora Desf.; B. P. i. 612.

In gardens and on lawns, general; native of America.

277. Helianthus Linn.

Helianthus annuus Linn.; H. S. 415; B. P. 613.

v. *Suraj mukhi, shuriya mukti*.

In gardens everywhere; native of S. America.

Helianthus argyrophyllus Torr. & Gr.; B. P. i. 613.

v. *Safed suraj mukhi, swet shuriya mukti.*

In gardens generally, and freely sub-spontaneous in cultivated ground and waste places; native of N. America.

Helianthus tuberosus Linn.; H S. 415; B. P. i. 613.

v. *Brahmokha.*

In vegetable and market gardens, especially near Calcutta; native of Brazil.

278. Guizotia Cass.

Guizotia abyssinica Cass.; H. S. 414, B. P. i. 614.

v. *Surgúja, ram tila.*

A field crop in Goghat sub-division of Hughli district; native of Africa.

279. Synedrella Gærtn.

Synedrella nodiflora Gærtn., B. P. i. 615.

In cultivated ground and waste places about Calcutta; occasional; native of tropical America.

280. Cosmos Cav.

Cosmos sulfureus Cav.; H. S. 416; B. P. i. 616.

In gardens; also not infrequent as a weed in waste places near Calcutta (quite naturalised in the drier districts to the west of our area); native of Mexico.

281. Spilanthes Linn.

Spilanthes Acmella Linn.; H S. 416; B. P. i. 614.

v. *Marhata tiga.*

Reported by Voigt from Serampore, but the record requires verification; the species occurs in Chota Nagpur, North Bengal, and Chittagong, but is probably only a casual on the deltaic alluvium.

282. Galinsoga Ruiz & Pav.

Galinsoga parviflora Cav.; B. P. i. 618.

A not uncommon weed in cultivated ground in the cold weather but not persisting; probably always a casual introduction from the Himalaya where it is abundant; originally introduced from America.

283. Tridax Linn.

Tridax procumbens Linn.; H. S. 417; B. P. i. 618.

Grassy glades, dry roadsides, old walls, everywhere; native of Mexico.

284. Chrysanthemum Linn.

Chrysanthemum coronarium Linn.; B. P. i. 619. *C. Roxburghii* H. S. 419.

v. *Gúl-dandi*.

Reported by Voigt from Serampore, but possibly only from Carey's Garden; it is a staple cold-weather crop in Northern Bengal and the Assam Valley, but is not grown in Central Bengal; native certainly of China and, it is said, also of the Mediterranean region. Voigt refers the vernacular name only to the garden *Chrysanthemum* (*C. indicum*) which is also a native of China, introduced to general horticulture by way of Japan.

285. Cotula Linn.

* **Cotula hemisphærica** Wall.; B. P. i. 620. *Machlis hemispherica* H. S. 420.

A weed of cultivated ground and waste places, west of the river Hughli.

286. Centipeda Lour.

* **Centipeda orbicularis** Lour, B. P. i. 620. *Myriogyne minuta* VAR. *lanuginosa* H. S. 420.

v. *Mechitta, hachuti*.

Damp ground, everywhere.

287. Cnicus Linn.

* **Cnicus arvensis** Hoffm., B P. i. 622. *Aplotaxis cirsioid's* H. S. 424.

v. *Tikbhuma, silkánta*.

Cultivated ground, everywhere.

288. Silybum Gærtn.

Silybum Marianum Gærtn.; H. S. 425; B P. i. 623.

In gardens, mostly, however, of European residents; native of the Mediterranean region, the Orient and the Western Himalaya.

289. Carthamus Linn.

Carthamus tinctorius Linn.; H. S. 425; B. P. i. 625.

v. *Kusumb*.

A cold-weather [illegible] crop, general; native of India.

290. Crepis Linn.

* **Crepis japonica** Benth.; B. P. i. 627. *Youngia procumbens* H. S 432 (not *Prenanthes procumbens* Roxb.)

Hedges, waste places, margins of partially dried ponds, general.

* **Crepis acaulis** Hook. f.; B. P. i. 627. *Youngia acaulis* H. S. 432. *Y. linifolia* H. S. 432.
Waste places, margins of paths, west of river Hughli, rare.

291. Lactuca Linn.

Lactuca sativa Linn, H. S. 430, B. P. i. 628.
v. *Káhú, salád.*
In vegetable and market gardens about Calcutta and other towns.

292. Sonchus Linn.

* **Sonchus asper** Vill., B. P. i. 629. *S. ciliatus* H. S. 432.
In fields and waste places, quite common.

Sonchus oleraceus Linn.; B P. i. 629.
In gardens an occasional weed; native of Europe.

Sonchus arvensis Linn.; B P. i. 629. *S orixensis* H. S 432.
v. *Banpalang.*
In gardens and waste places, rather rare. This in the writer's experience is the rarest of the three Sow-thistles that are to be met with in our area, it is common in various parts of India but can hardly be considered a native of these districts

293. Launea Cass.

* **Launea asplenifolia** Hook. f; B P. i 630. *Microrhynchus asplenifolius* H. S. 431.
v. *Tik-chana.*
In grassy glades and open fields, everywhere.

* **Launea pinnatifida** Cass., B P. i. 630.
Western Sundribuns, creeping on sand at the sea-face.

LVII.—CAMPANULACEÆ.

294. Lobélia Linn.

Lobelia trigona Roxb., B. P. i. 633. *L. triangulata* H. S. 367.
Reported by Voigt from Serampore; quite possibly, but the record requires confirmation; native of India, common in wet pastures in Western Bengal.

295. Sphenoclea Gærtn.

* **Sphenoclea zeylanica** Gærtn.; B. P. i. 635. *Pongatium* H. S. 371.
v. *Jhil mirich.*
Edges of pools and ditches and rice-fields, general.

296. Wahlenbergia Schrad.

* **Wahlenbergia gracilis** DC.; B. P. i. 636. *W. dehiscens* H. S. 369.

Dry fields west of the river Hughli, general, but not anywhere common; has been collected near Shibpur (*Kurz*), Serampore (*Voigt*), and Chandernagore (*Prain*).

LVI.—STYLIDEÆ.

297. Stylidium Sw.

* **Stylidium tenellum** Sw.; H. S. 372; B. P. i. 631.

Ditches about Serampore (*Voigt*); should be looked for again as it has not been collected, since Voigt's record, in our districts.

LVIII.—PLUMBAGINEÆ.

298. Ægialitis R. Br.

* **Ægialitis rotundifolia** Roxb.; H. S. 439; B. P. i. 638.

v. *Sátári.*

Western Sundribuns, plentiful

299. Plumbago Linn.

Plumbago zeylanica Linn.; H. S. 438; B. P. i. 639.

v. *Chita, chitra.*

In gardens; also occasionally as a weed in waste places but with no claim to be a native of our districts; native of S. E. Asia.

Plumbago rosea Linn.; H. S. 439; B. P. i. 639.

v. *Rakto-chita, Rakto-chitra.*

In gardens, generally, also sometimes as a weed in waste places; native of S. E. Asia.

LIX.—PRIMULACEÆ.

300. Androsace Linn.

* **Androsace saxifragæfolia** Bunge; B. P. i. 640.

Sides of moat round Fort William.

This was once collected by Dr. T. Anderson, but has not been met with again in our districts.

301. Anagallis Tournef.

Anagallis arvensis Linn.; H. S. 335; B. P. i. 641.

A cold-weather weed of fields and gardens near Calcutta; generally to be met with if looked for, but always very rare, and

apparently not persisting, so that it probably has no claims to be a native of our districts. Only the blue-flowered form, characteristic of Upper India, is to be found; possibly it is annually re-introduced with up-country seed.

LX.—MYRSINEÆ.

302. Ardisia Sw.

* **Ardisia humilis** Vahl.; H. S. 337; B. P. i. 645.
v. *Ban jám.*
Village shrubberies, chiefly east of the river Hughli.

303. Ægiceras Gærtn.

* **Ægiceras majus** Gærtn.; B. P. i. 645. *A. fragrans* H. S. 336.
v. *Halsi, khalsi, koilsha.*
Western Sundribuns, common; salt-lakes near Calcutta.

LXI.—SAPOTACEÆ.

304. Achras Linn.

Achras Sapota Linn.; H. S. 339; B P. i. 648.
v. *Sapota* (the American name adapted).
Cultivated in orchards about Calcutta; native of S. America.

305. Mimusops Linn.

Mimusops Elengi Linn.; H. S. 341; B. P. i. 649.
v. *Bakul*
Planted generally near villages, occasionally also self-sown; native of S E. Asia.

LXII.—EBENACEÆ.

306. Diospyros Linn.

* **Diospyros Embryopteris** Pers.; H. S. 345; B. P. i. 653.
v. *Gáb.*
Village-shrubberies general; also in Western Sundribuns, *e.g.* at Jatta.

* **Diospyros cordifolia** Roxb.; H. S. 344. *D. montana* VAR, *cordifolia* B. P. i. 653.
v. *Ban gáb.*
Village-shrubberies, general; also in Western Sundribuns, *e.g.* at Jatta.

Diospyros Kaki Linn. f.; H. S. 345; B. P. i. 653.
In gardens and orchards; native of China.

Diospyros discolor Willd.; H. S. 345; B. P. i. 654.
In gardens, occasionally; native of the Philippines.

LXIII.—OLEACEÆ.

307. Jasminum Linn.

* **Jasminum pubescens** Willd.; H. S. 550; B. P. i. 659.
v. *Kundá.*
Goghat sub-division, Hughli district; also reported by Voigt from Serampore, but this last record needs confirmation.

Jasminum Sambac Ait.; H. S. 549; B. P. i. 659.
v. *Bél, ban mallika.*
In gardens generally; occasionally in village-shrubberies; native of the Orient.

Jasminum auriculatum Vahl; H. S. 551; B. P. i. 659.
v. *Jui, juť hi.*
In gardens occasionally; native of India.

Jasminum elongatum Vahl; H. S. 550. *J. Roxburghianum* H. S. i. 658, partly.
Reported by Roxburgh from Hidguli, and reported by Voigt from the Sundribuns; is a plant that should be looked in the southern part of our districts.

308. Nyctanthes Linn.

Nyctanthes Arbor-tristis Linn.; H. S. 552; B. P. i. 660.
v. *Singhar, septalika.*
Sometimes planted about tanks and near villages; native of India.

LXIV.—SALVADORACEÆ.

309. Azima Lamk.

* **Azima tetracantha** Lamk; B. P. i. 663. *Monetia tetracantha* H. S. 348.
v. *Trikanta gati.*
Western Sundribuns (*Prain*); Serampore (*Voigt*); Chandernagore and Hughli (*Prain*).

LXV.—APOCYNACEÆ.

310. Allamanda Linn.

Allamanda cathartica Linn.; H. S. 528; B. P. ii. 667.

v. *Har-kakra.*

In gardens generally; introduced from Guiana.

311. Carissa Linn.

Carissa Carandas Linn., H. S. 529; B. P. ii. 668.

v. *Karamcha.*

In gardens, and sometimes sub-spontaneous in village-shrubberies; native of S E. Asia.

Carissa spinarum A. DC.; B. P. ii. 669. *C. diffusa* H. S. 529.

Reported by Voigt from the Sundribuns, but this is very doubtful; there are no specimens from our area at Calcutta; the species is very common in the western parts of Bengal.

312. Thevetia Juss.

Thevetia neriifolia Juss.; H. S. 531; B. P. ii. 669.

v. *Kokla phul, haldi korubi*

In gardens everywhere, but also often sub-spontaneous in village-shrubberies and now occasionally found also in waste places; has been found as if wild even in the Goghat sub-division of the Hughli district; native of tropical America.

313. Cerbera Linn.

* **Cerbera Odollam** Gærtn.; H. S. 531; B. P. ii. 670.

v. *Dákúr.*

Western Sundribuns, on river banks, common.

314. Plumeria Linn.

Plumeria acutifolia Poir. B. P. ii. 670. *P. acuminata* H S. 528.

v. *Gorur champa, goburiya champa.*

Planted everywhere about villages and near temples but shows little tendency to appear spontaneously; native of S. America.

315. Rauwolfia Linn.

* **Rauwolfia serpentina** Benth.; B. P. ii. 671. *Ophioxylon serpentinum* H. S. 532.

v. *Chandrá, chhota chand.*

Shady groves, general; but doubtfully a native of our districts.

Rauwolfia canescens Linn H. S 532, B P ii. 671.

In gardens, also quite naturalized in village-shrubberies and, at least about Calcutta, commoner than the preceding species, native of the West Indies.

316. Kopsia Bl

Kopsia fruticosa A DC. B P ii. 671 *Calpicarpum Roxburghii* H S 531.

In gardens and on lawns, often, native of Tenasserim and the Andamans

317. Vinca Linn.

Vinca rosea Linn., H S. 526 B P. ii 672

v. *Gul feringhi*

In gardens and near shrines and temples everywhere, also often sub-spontaneous on rubbish heaps, native of West Indies.

318 Alstonia R Br

Alstonia scholaris R Br, H S 525 B P ii 672

v *Chhattin*

Reported by Voigt from Serampore, but in our districts is almost certainly only planted, it is, however, wild in Western Bengal

Alstonia macrophylla Wall, H S 526

Occasionally planted, and about Calcutta and Howrah also appearing spontaneously in village thickets, native of Malaya, and one of the few Malayan species that show a tendency to become naturalized in Lower Bengal

319 Tabernæmontana Linn

Tabernæmontana coronaria R. Br, H S 527, B P. ii 673.

v. *Vagur*

In gardens everywhere, but sometimes also sub-spontaneous, *e.g.* at Mátla, native of India.

320. Holarrhena R Br.

*** Holarrhena antidysenterica** Wall., H. S. 524; B. P. ii. 674.

v. *Kurchi.*

Goghat, Western Hughli district

321. Wrightia R. Br.

Wrightia coccinea Sims; H. S. 526, B. P. ii. 674.

In gardens, general.

322. Vallaris Burm.

* **Vallaris Heynei** Spreng.; B. P. ii. 675. *V. dichotoma* H. S. 524.
v. *Hápar mali.*
Village-shrubberies; apparently quite entitled to be considered native, though it is sometimes also found in gardens.

Vallaris Pergulana Burm.; H. S. 524; B. P. ii. 675.
In gardens, occasionally; native of S. E. Asia.

323. Parsonsia R. Br.

* **Parsonsia spiralis** Wall.; H. S. 524; B. P. ii. 676.
Western Sundribuns.

324. Nerium Linn.

Nerium odorum Soland.; H. S. 524; B. P ii. 676.
v. *Karabi.*
In gardens everywhere; native of China.

325. Roupellia Wall.

Roupellia grata Wall; B. P. ii. 677.
In gardens and on lawns, rather common; native of Madagascar.

326. Beaumontia Wall.

Beaumontia grandiflora Wall; H S 524; B. P. ii. 678.
Grown on trellises and porches in gardens about Calcutta; native of Eastern Himalaya and Indo-China.

327. Ichnocarpus R. Br.

* **Ichnocarpus frutescens** R. Br.; H. S. 523; B. P. ii. 680.
v. *Siama lata.*
Hedges, thickets and waste places, everywhere.

LXVI.—ASCLEPIADACEÆ.

328. Cryptostegia R. Br.

Cryptostegia grandiflora R. Br.; H. S. 544; B. P. ii. 684.
In gardens, general; native of Madagascar.

329. Cryptolepis R. Br.

* **Cryptolepis Buchanani** R. & S.; B. P. ii. 685. *C. reticulata* H. S. 544.
v. *Karanta.*
Hedges and village-shrubberies, general.

330. **Hemidesmus** R. Br.

* **Hemidesmus indicus** R. Br., H. S 544; B. P. ii. 686.
v. *Ananta mul*
Hedges, thickets and waste places, everywhere.

331. **Finlaysonia** Wall.

* **Finlaysonia obovata** Wall.; B. P. ii. 686. *Gurua obovata* H S. 544.
v *Dudhi-lata.*
Western Sundribuns.

332. **Oxystelma** R. Br.

* **Oxystelma esculentum** R. Br., H S 541, B. P ii. 683.
v. *Kirni.*
Waste places, general but never common.

333. **Calotropis** R. Br.

* **Calotropis gigantea** R Br, H S 540, B P. ii 683
v. *Ákanda, gurtakand.*
Roadsides and waste places, everywhere.

334. **Asclepias** Linn

Asclepias Curassavica Linn., H. S 539; B. P. ii 689.
Waste places near villages, everywhere ; native of America.

335. **Cynanchum** Linn.

* **Cynanchum Callialata** Ham.; B. P. ii. 690. *C. pauciflorum* H S. 541.
v. *Chagulbati*
Hedges and thickets, general.

336. **Pentatropis** R. Br.

* **Pentatropis microphylla** W. & A.; H. S. 540; B. P. ii. 601.
Hedges and thickets or banks of khals and rivers, from Calcutta salt-lakes southwards.

337. **Dœmia** R. Br.

* **Dœmia extensa** R. Br., H. S. 541; B. P. ii 692.
v. *Chagul-bati.*
Hedges and thickets, everywhere.

* 338. **Sarcostemma** R Br.

Sarcostemma brevistigma Wight; B. P. ii. 692. *S. acida* H. S. 542.
v. *Soma lata.*

Reported by Voigt to have been once obtained by Dr. Carey at Serampore; probably only a casual in our districts: it is wild in South-West Chota Nagpur (Singbhum).

339. Sarcolobus R. Br.

* **Sarcolobus globosus** Wall.; H. S. 538; B. P. ii. 693.
v. *Baoli-lata.*
Western Sundribuns.

* **Sarcolobus carinatus** Wall; H. S. 538; B. P. ii. 693.
v. *Baoli-lata.*
Western Sundribuns.

340. Gymnema R. Br.

Gymnema hirsutum W. & A.; B P. ii. 694. *G sylvestre* H. S. 538.
v. *Chhoto dudhi lata.*
Reported by Voigt from Serampore and should be looked for; it is common in Behar and Chota Nagpur.

341. Pergularia Linn.

* **Pergularia pallida** W & A.; H. S. 538; B. P. ii. 696.
Goghat, Western Hughli district in low jungles; reported also by Voigt from Serampore, this last recorded locality needs confirmation.

Pergularia minor Andr.; H. S. 537; B. P. ii. 697. *P. odoratissima* H. S. 537.
v. *Kanja lata.*
In gardens, generally; reported by Voigt from Serampore but probably there only sub-spontaneous, native of S. E. Asia.

342. Dregea E. Mey.

* **Dregea volubilis** Benth.; B. P. ii. 697. *Hoya viridiflora* H. S. 537.
v. *Tita-kunga.*
Hedges and thickets, general.

343. Tylophora R. Br.

* **Tylophora tenuis** Bl.; B. P. ii. 698. *T tenuissima* H. S. 539.
Hedges, thickets and banks of creeks, from salt-lakes near Calcutta southwards.

* **Tylophora asthmatica** W. & A.; B. P. ii. 698. *T. vomitoria* H. S. 539.
v. *Anta-mal.*
Waste places and hedges, general.

344. Hoya R. Br.

* **Hoya parasitica** Wall.; B. P. ii. 700. *H. pallida* H. S. 536.
v. *Pargátcha.*
Western Sundribuns.

LXVII.—LOGANIACEÆ.

345. Mitrasacme Labill.

* **Mitrasacme alsinoides** R. Br.; B. P. ii. 702.
Waste places, Goghat, Western Hughli.

LXVIII.—GENTIANACEÆ.

346. Exacum Linn.

* **Exacum tetragonum** Roxb.; H. S. 520; B. P. ii. 706.
v. *Kuchári.*
Wet meadows, occasional.

Exacum pedunculatum Linn.; H. S. 520; B. P. ii. 706.
Reported by Voigt from Serampore, but the record needs verification; is found in Behar and Chota Nagpur.

347. Erythræa L. C. Rich.

* **Erythræa Roxburghii** G. Don; B. P. ii. 707. *E. centaurioides* H. S. 520.
v. *Gima, girmi.*
Grassy places, occasional.

348. Hoppea Willd.

* **Hoppea dichotoma** Willd.; B. P. ii. 707. *Canscora ? pusilla* H. S. 520.
Damp meadows and drying rice-fields, everywhere.

349. Canscora Lamk.

* **Canscora diffusa** R. Br.; H. S. 520; B. P. ii. 708.
Grassy places and sides of paths, everywhere.

* **Canscora decussata** R. & S.; H. S. 520; B. P. ii. 708.
v. *Dántuni.*
Grassy places, paths and waste ground, everywhere.

350. Enicostema Bl.

Enicostema littorale Bl. *Slevogtia verticillata* H. S. 320.
v. *Chhota-kirata.*
Reported by Voigt from Serampore and should therefore be looked for, the record is not a very probable one, and no other botanist has ever reported the species from Bengal.

351. Limnanthemum S. P. Gmel.

* **Limnanthemum cristatum** Griseb.; B. P. ii. 709. *Villarsia cristata* H. S. 321.
v. *Pan-chuli, chand malla, chhota pan chuli.*
Floating on ponds and jhils, everywhere.

* **Limnanthemum indicum** Thw., B. P. ii. 709. *Villarsia indica* H. S. 321.
v. *Pan-chuli, chand malla, bara pan chuli.*
Floating on ponds and jhils, everywhere.

LXIX.—POLEMONIACEÆ.

352. Phlox Linn.

Phlox Drummondi Hook.; B. P. ii. 710.
In gardens in the cold weather, occasionally sub-spontaneous on rubbishy places near Calcutta, but only the white-flowered kinds, so far as the writer's observations go, and not every year: native of Texas. It may be noted that, though now so general a favourite, this species, according to Voigt, had not been introduced up to 1845.

LXX.—HYDROPHYLLACEÆ.

353. Hydrolea Linn.

* **Hydrolea zeylanica** Vahl.; H. S. 366; B. P. ii. 711.
v. *Kasschra* or (*fide* Voigt) *kankra.*
Marshy places and edges of rice-fields, general.

LXXI.—BORAGINEÆ.

354. Cordia Linn.

* **Cordia Myxa** Linn.; H. S. 440, B. P. ii. 714.
v. *Bohnari, lashora.*
In hedges and village-shrubberies, but sometimes also planted.

Cordia Sebestena Linn.; H. S. 440; B. P. ii. 714.
In gardens; native of West Indies.

355. Ehretia Linn.

Ehretia lævis Roxb.; H. S. 445; B. P. ii. 718.

Reported by Voigt from Serampore, but the record needs confirmation; is common everywhere west of our districts.

356. Heliotropium Linn.

* **Heliotropium ovalifolium** Forsk.; B. P. ii. 716. *H. coromandelianum* H. S. 444.

v. *Naga phuli.*

Goghat, Western Hughli; reported also from Serampore by Voigt.

* **Heliotropium strigosum** Willd. VAR. **brevifolia** B. P. ii. 716. *H. brevifolium* H. S. 445.

v. *Chiti phuli.*

Dry fields and waste places, principally west of the Hughli.

* **Heliotropium indicum** Linn.; B. P. ii. 716. *Tiaridium indicum* H. S. 445.

v. *Hati sura.*

Rubbish heaps and waste places, everywhere.

Voigt records *H. curassavicum* as naturalised about Serampore prior to 1843, it does not appear to have persisted.

357. Coldenia Linn.

* **Coldenia procumbens** Linn.; H. S. 445; B. P. ii. 718.

v. *Triphunki.*

Dry rice-fields, everywhere.

358. Bothriospermum Bunge.

Bothriospermum tenellum F. & M.; B. P. ii. 719. *Cynoglossum diffusum* H. S. 443.

Reported by Voigt from Serampore; quite possibly, but the record needs confirmation; plentiful in E. Bengal.

359. Cynoglossum Linn.

* **Cynoglossum lanceolatum** Forsk.; B. P. ii. 719. *C. canescens* H. S. 443.

Waste places, especially about Calcutta.

360. Trichodesma R. Br.

* **Trichodesma indicum** R. Br.; H. S. 444; B. P. ii. 720.

v. *Chhoto kulpa.*

Fields and waste places, everywhere.

Trichodesma zeylanicum R. Br. ; H. S. 444 ; B. P. ii. 720.
v. *Buro kulpa.*
Reported by Voigt from Serampore, but the record needs confirmation ; it is wild throughout the drier parts of India and Ceylon.

LXXII.—CONVOLVULACEÆ.

361. Cuscuta Linn.

* **Cuscuta reflexa** Roxb. ; H. S. 349 ; B. P. ii. 723.
v. *Haldi algusi.*
Parasitic on trees and shrubs, everywhere ; attaches itself to very many species.

Cuscuta chinensis Lamk. *C. sulcata* H. S. 349.
Reported by Voigt from Serampore , also reported by Roxburgh as occurring on *Amarantus oleraceus*, etc.; not at all improbably, but the record needs verification ; occurs in Chota Nagpur.

Cuscuta capitata Roxb , H. S 349.
v *Algusi*
Reported by Roxburgh as occurring on *Crotalaria juncea*, also by Voigt as appearing at Serampore on the same species ; probably only a casual introduced also with seed of *Çan* from outside Bengal ; occurs throughout the North-West Himalaya.

Cuscuta europæa Linn. *C. aggregata* H. S 349.
Roxburgh records this as having once appeared on *Flax* the seeds of which were imported from Bagdad ; no doubt a mere casual ; native of the Orient, Central Asia, and Europe.

362. Porana Burm.

Porana paniculata Roxb., H. S. 363 ; B. P. ii. 724.
In gardens on trellises or on trees ; native of India.

363. Cressa Linn.

* **Cressa cretica** Linn., B. P. ii. 725. *C indica* H. S. 363.
Salt-lakes near Calcutta, in dried up muddy places.

364. Evolvulus Linn.

* **Evolvulus alsinoides** Linn. ; H. S 363 ; B. P. ii. 725.
Dry grassy places west of the Hughli.

Evolvulus nummularius Linn. ; B. P. ii. 726.
Grassy glades around Calcutta, Howrah, etc., quite naturalised ; a recent introduction from the West Indies.

365. Hewittia W. & A.

Hewittia bicolor W. & A., H S 362, B P ii. 727.

v. Jarad-kalmi.

Recorded from Serampore by Voigt; quite possibly, but requires to be verified, native of India.

366. Jacquemontia Choisy.

Jacquemontia cœrulea Choisy; B P. ii. 728.

In gardens generally, native of Africa.

367. Merremia Dennst.

Merremia umbellata Hallier f B. P. ii. 730 *Ipomœa platanifolia* H S 359

A form of this species not distinguishable from the American variety of the plant, VAR. **occidentalis**, has been reported by Voigt from Serampore and met with by Kurz climbing on bushes on the banks of the Hughli, near Calcutta probably, however, only as an escape from cultivation that has not persisted, for there is no recent gathering of the plant, the Indian variety, VAR **orientalis**=*Ipomœa cymosa* (H. S. 358) has not been found in our districts.

* **Merremia vitifolia** Hallier f., B P ii 730. *Ipomœa vitifolia* H. S 361.

Occasionally in village-shrubberies.

Merremia tridentata Hallier f, B. P ii. 730. *Ipomœa tridentata* H S. 356.

Reported by Voigt from Serampore, but the record requires confirmation, common in Western Bengal and Behar.

Merremia hastata Hallier f.; B. P, ii. 730 *Ipomœa filiformis* H S 356

Reported by Voigt from Serampore, but the record is not very probable, nearest authentic locality Orissa

* **Merremia chryseides** Hallier, f., B. P. ii. 730 *Ipomœa dentata* H. S. 359.

Banks of the Hughli, below Calcutta, rare, Serampore, according to Voigt, perhaps only an escape in our districts, native of Eastern Asia.

* **Merremia convolvulacea** Dennst. *M. hederacea* B. P. ii. 730.

Sundribuns.

* **Merremia emarginata** Hallier f; B. P. ii. 730. *Ipomœa gangetica* H S. 356.

v. Bhui kamri.

In grassy glades and open sandy places, everywhere.

368. Operculina Manso.

Operculina Turpethum Manso; B. P. ii. 731. *Ipomœa Turpethum* H. S. 357.

v. *Tohri, dudh-kalmi.*

Hedges, thickets and river banks, general.

369. Ipomœa Linn.

Ipomœa hispida R & S., H. S. 357; B. P. ii. 734

Reported by Voigt from Serampore, and found by the writer at Shibpur, but by the latter only in plots where seeds from Central or Upper India had been sown; the species is probably not entitled to rank as a native of our districts, it is not uncommon in the drier parts of India

* **Ipomœa Pes-tigridis** Linn., H. S. 361; B. P. ii. 734.

v. *Kanguli lata*

Occasional in hedges and thickets.

Ipomœa Learii Paxt., B. P. ii. 734.

In gardens, on trellises, general.

Ipomœa Nil Roth; B. P. ii 734. *Pharbitis Nil* H. S. 354.

v. *Nil kalmi.*

In gardens everywhere and occasionally in waste places as if wild; cosmopolitan now in the Tropics, but true native place uncertain.

Ipomœa purpurea Lamk.; B. P. ii. 735. *Pharbitis purpurea* H. S. 354.

In gardens generally, native of S America.

* **Ipomœa paniculata** R. Br.; B. P. ii. 735. *Batatas paniculata* H. S. 353.

v. *Bilai kand, bhui kumra.*

Hedges and thickets everywhere.

Ipomœa Batatas Lamk, B. P. ii. 735. *Batatas edulis* H. S. 353.

v. *Mita álu, shakarkand.*

Cultivated generally in gardens and market gardens; native of America.

* **Ipomœa Pes-Capræ** Sw.; H. S. 356; B. P ii. 736.

v. *Chhagal kuri*

Western Sundribuns on sandy shores.

* **Ipomœa reptans** Poir.; H. S. 355, B. P. ii. 736.

v. *Kalmi sák.*

In ponds and marshes, everywhere.

* **Ipomœa sepiaria** Koen.; B. P. ii. 736. *Ipomœa striata* H. S. 358. *I. stipulacea* H. S. 359.
v. *Ban kalmi.*
Hedges, thickets and waste places, everywhere, in two not very distinct forms or varieties.

* **Ipomœa obscura** Ker ; H. S. 359 ; B. P. ii. 736.
Hedges, thickets and waste places, general.

Ipomœa tricolor Cav. ; B. P. ii. 736.
In gardens generally, on trellises ; native of Mexico.

Ipomœa pulchella Roxb.; B. P. ii. 737. *I. heptaphylla* H. S. 360.
In gardens on trellises, general ; native of India and Indo-China.

370. Quamoclit Mœnch.

Quamoclit phœnicea Choisy ; H. S. 353; B. P. ii. 737.
In waste places, general, sometimes also in gardens; originally doubtless a garden escape but now completely naturalised ; native of America.

Quamoclit pinnata Boj. ; H. S. 353 ; B P. ii. 738.
v. *Taru-lata, kan lata.*
In gardens everywhere ; sometimes also in waste places as an escape ; native of America.

371. Calonyction Choisy.

* **Calonyction Bona nox** Boj.; B. P. ii. 738. *C. Roxburghii* H. S. 355.
v. *Dudh kalmi, dal kalmi.*
In hedges and village-shrubberies, everywhere ; occasionally, but very rarely, cultivated. This species is so general that it appears to have a good claim to be considered a native.

372. Rivea Choisy.

Rivea hypocrateriformis Choisy; B. P. ii. 739. *R. Bona nox* H. S. 351.
v. *Kalmi lata.*
Reported by Voigt from Serampore, but the record is not very probable; nearest known locality Midnapore.

373. Stictocardia Hallier. f.

* **Stictocardia tiliæfolia** Hallier f.; B. P. ii. 740. *Rivea tiliæfolia* H. S. 350
Banks of Hughli river, Salt-lakes, Sundribuns.

374. Argyreia Lour.

* **Argyreia speciosa** Sw.; H. S. 351; B. P. ii. 741.
v. *Bich tarak, guguli.*
In village-shrubberies, occasional.

* **Argyreia argentea** Choisy; H. S. 352; B. P. ii. 741.
v. *Chhota bich-tarak.*
Serampore, *Voigt*; Chandernagore, *Prain's collector;* Hughli, *Prain.* Apparently very rare in our area.

375. Lettsomia Roxb.

* **Lettsomia strigosa** Roxb. B. P. ii. 742. *Argyreia capitata* H. S. 352.
In village-shrubberies and hedges.

LXVIII.—SOLANACEÆ.

376. Lycopersicum Mill.

Lycopersicum esculentum Mill.; H. S. 513; B. P. ii. 743.
v. *Gur-bagun.*
Cultivated and sometimes on rubbish heaps as an escape; native of America.

377. Solanum Linn.

Solanum tuberosum Linn.; H. S. 510; B. P. ii. 745.
v. *Bilati alu.*
Cultivated, especially in Hughli district.

* **Solanum nigrum** Linn., B. P. ii. 745. *S. rubrum* H. S. 511.
v. *Gurki, gurkamai.*
Shady places, garden ground and waste spots; general.

* **Solanum verbascifolium** Linn.; H. S. 511; B. P. ii. 746.
v. *Arasa.*
Village-shrubberies, roadsides and waste places; general.

Solanum glaucum Dun.
Naturalised and very abundant at Canning Town; native of America.

Solanum sisymbriifolium Lamk.; B. P. ii. 746.
Occasionally as if wild about Shibpur and on the banks of the river Hughli; native of America.

* **Solanum ferox** Linn.; H. S. 512; B. P. ii. 746.
v. *Ram-begun.*
Waste places, not very common.

* **Solanum torvum** Sw.; H. S. 511; B. P. ii. 746.
v. *Gota begun.*
Village-shrubberies, roadsides and waste places; everywhere.

* **Solanum indicum** Linn, H. S. 512; B. P. ii. 746.
v. *Byakur.*
Waste places near villages, general.

Solanum Melongena Linn.; H. S. 512; B. P. ii. 746.
v. *Begun*
In gardens and market gardens, everywhere.
VAR. **esculenta** H. S. 512; B. P. ii. 746.
v. *Kuli begun.*
In gardens and market gardens, everywhere.
VAR **insana** H. S. 512; B. P. ii. 746.
In village-shrubberies and waste places, general. This is rather a state of the cultivated *Begun* become general after escape than a truly wild stock; native of India.

* **Solanum xanthocarpum** Schr. & Wendl., B. P. ii. 746. *S. Jacquini* H. S 513.
v. *Kantee kari.*
Waste places and dry fields, everywhere.

* **Solanum trilobatum** Linn.; H. S. 513, B. P. ii. 747.
Western Sundribuns.

378. Capsicum Linn.

Capsicum annuum Linn. VAR. **abbreviata**; B. P. ii. 748. *C. frutescens* H. S. 510.
v. *Lanka mirich.*
In fields and market gardens, everywhere; native of America.
VAR. **grossa** B. P. ii. 748. *C. grossum* H. S. 510.
v. *Kápkari mirich.*
In gardens of natives and Europeans, general; native of America.

Capsicum frutescens Linn., B. P. ii. 749. *C. fastigiatum* H. S 510.
v. *Dhan mirich.*
In gardens occasionally; as if wild in waste places, general; native of S. America.

379. Physalis Linn.

* **Physalis minima** Linn., H. S. 514; B. P. ii. 750.
v. *Ban-tipariya.*
A weed of garden ground, everywhere.

Physalis peruviana Linn.; H. S. 514; B. P. ii. 759.

v. *Tiparıya.*

In gardens and market gardens, general; native of S. America.

380. Withania Paug.

Withania somnifera Dun., B. P. ii. 750. *Physalis somnifera* H. S. 513.

v. *Ashva gandha.*

Reported from Serampore by Voigt, but almost certainly not wild; it is cultivated in small gardens in Northern Bengal and may perhaps be met with in our provinces in the gardens of native herbalists; native of Western India.

381. Datura Linn.

Datura fastuosa Linn., H. S. 515; B. P. ii. 751.

v. *Kala Dhutra.*

In gardens generally, sometimes as if wild, native of India.

VAR alba B. P. ii. 751. *D. alba*, H. S. 515.

v *Dhutra.*

In gardens everywhere, and in waste places, as if wild, generally; native of India.

382. Petunia Juss.

Petunia nyctaginiflora Juss.; H. S. 516.

In gardens of Europeans; occasionally sub-spontaneous in garden beds and on rubbish heaps.

383. Nicotiana Linn.

Nicotiana rustica Linn; H. S. 516; B. P. ii. 752.

v. *Hamaku, angrezi tamaku.*

Cultivated sparingly in fields; native of America.

Nicotiana Tabacum Linn.; H. S. 516; B. P. ii. 752.

v. *Tamaku.*

In fields, fairly generally; native of America.

Nicotiana plumbaginifolia Viv.; H. S. 516; B. P. ii. 752.

v. *Ban tamaku.*

A weed of shady places, general; native of America.

384. Browallia Linn.

Browallia elata Linn.; H. S. 500; B. P. ii. 753.

In gardens of Europeans, general, but often also occurring spontaneously in garden beds and on rubbish heaps.

LXXIV.—SCROPHULARINEÆ.

385. Celsia Linn.

* **Celsia coromandeliana** Vahl.; H. S. 497; B. P. ii. 757.
v. *Koksima.*
A weed of fields and gardens, general.

386. Linaria Juss

* **Linaria ramosissima** Wall.; H. S. 498; B. P. ii. 757.
Waste places, west of the Hughli, rare.

387. Mazus Lour.

* **Mazus rugosus** Lour.; B P ii 759.
In grassy glades and on garden paths about Calcutta, not very common, and possibly an introduction from elsewhere, not recorded by Voigt though it was known previously to Roxburgh.

388. Lindenbergia Lehm.

* **Lindenbergia urticifolia** Lehm ; B. P. ii. 760. *L. ruderalis* H. S. 501.
v. *Haldi basanta*
Old walls and sloping banks, everywhere.

389. Limnophila R. Br.

Limnophila Roxburghii G. Don.; H. S. 502; B. P. ii. 763.
v. *Kala karpur.*
In native gardens occasionally; recorded from Serampore by Voigt but very doubtfully wild in our area; is wild in Chota Nagpur and North Bengal.

* **Limnophila conferta** Benth.; B. P. ii. 764.
Damp places, occasional.

Limnophila diffusa Benth.; B. P. ii. 764. *L. albiflora* H. S. 502.
Damp places, occasional.

* **Limnophila erecta** Benth.
Serampore, *Griffith.* Not referred to either by Roxburgh or by Voigt, but once collected at Serampore by Griffith. The species is plentiful in Tenasserim and the Malay Peninsula, and it may have been only as a casual, introduced with plants from Southern Burma or Malaya to Dr. Carey's garden, that Griffith met with it.

* **Limnophila heterophylla** Benth; H. S. 502; B. P. ii. 764.
Rice-fields and swampy places, general.

* **Limnophila gratissima** Bl.; B P. ii. 764.
Western Sundribuns at Jatta, in a sweet water tank.

* **Limnophila racemosa** Benth., H. S. 502; B. P. ii. 764.
Rice-fields and swamps, occasional.

* **Limnophila gratioloides** R. Br.; H. S. 502; B. P. ii. 764. *L. gratioloides* VAR. *myriophylloides* H. S. 502.
v. *Karpur.*
Rice-fields, swamps and damp places everywhere.

390. Herpestis Gærtn. f.

* **Herpestis Monnieria** H. B. & K., H. S 502; B. P. ii. 765.
v. *Adha birni.*
Marshes, rice-field borders, and wet places everywhere.

Herpestis chamædroides Linn., B. P. ii 765.
A fairly common weed of garden paths about Calcutta; a quite recent introduction from America

Herpestis Hamiltoniana Benth.; B. P. ii. 765. *H. sessiliflora* H. S. 502.
Reported by Voigt from Serampore, quite a probable record as the species occurs both to the west and to the east of our districts; the record for this area, however, requires verification.

391. Dopatrium Ham.

* **Dopatrium junceum** Ham; (H. S. 503); B. P. 766. *D. nudicaule* H. S 503.
Rice-fields and swamps, mostly west of the Hughli.
Voigt in H. S. appears to have reversed the incidence of the two names cited confining *D. junceum* to Coromandel and recording *D. nudicaule* from Bengal The experience of all subsequent collectors has been that it is *D. junceum* which occurs in our districts.

392. Torenia Linn.

Torenia cordifolia Roxb; H. S 505; B. P. ii. 767.
Reported from Serampore by Voigt, but certainly not a native of our districts, though it may quite possibly have been met with by him as a casual, introduced with seeds from other parts of India; native of the higher parts of India and of the lower Himalayan spurs.

Torenia asiatica Linn.; H. S. 505.
Reported from Serampore by Voigt, but certainly not a native of our districts. From his citations it would appear that Voigt refers to

two other species, *T. vagans* and *T. peduncularis* and not to the true *T. asiatica* at all. But in any case the plant he refers to can only have occurred as an escape from cultivation (if he means the true *T. asiatica*) or as possibly a casual (if he means either of the others). All three occur both in India and in Malaya.

Torenia Fournieri Linden; B. P. ii. 767.

In gardens of European residents general; but also coming up spontaneously on rubbish heaps and in waste ground; native of Cochin-China.

This plant shows every sign of becoming quite domesticated in our districts; none of the Indian or Malayan species.

393. Vandellia Linn.

* **Vandellia crustacea** Benth.; H. S. 504; B. P. ii. 768. *V. varians* H. S. 505.

Fields, gardens and paths, everywhere.

* **Vandellia multiflora** G. Don; B. P. ii. 768.

A field and garden weed, general.

* **Vandellia pedunculata** Benth.; B. P. ii. 769. *V. Roxburghii* H. S. 504.

Damp places and rice-fields, occasional.

* **Vandellia angustifolia** Benth.; B. P. ii. 769.

Rice-fields in Western Hughli district, rare.

* **Vandellia pyxidaria** Maxim.; B. P. ii. 769. *Bonnaya integrifolia* H. S. 504.

Gardens, fields and path-ways, everywhere.

394. Ilysanthes Raf

* **Ilysanthes parviflora** Benth.; B. P. ii. 769. *Bonnaya parviflora* H. S 504.

Rice-fields, west of the Hughli, occasional.

Ilysanthes hyssopoides Benth.; B. P. ii. 1277. *Bonnaya hyssopoides* H. S. 504.

Recorded by Voigt from Serampore, but not a likely record; the nearest known localities are Silhet and Southern Chota Nagpur; possibly it was the preceding species that Voigt met with.

Ilysanthes rotundifolia Benth. *Bonnaya rotundifolia* H. S. 504.

Recorded by Voigt from Serampore, but a less likely record than the preceding, as the species is apparently confined to Southern India and Ceylon, Mauritius and Madagascar.

Voigt does not report *I. parviflora* from Bengal though that species does certainly occur in our area.

395. Bonnaya Link & Otto.

* **Bonnaya brachiata** Link & Otto; B. P. ii. 770. *B. serrata* H. S. 503.
v. *Bhumi nim.*
A weed of fields, gardens and path-ways.

* **Bonnaya veronicæfolia** Spreng; H. S. 503; B. P. ii. 770.
Wet places, everywhere.
VAR. * **verbenæfolia** B. P. ii. 770 *B. verbenæfolia* H. S. 503.
Wet places, general.
VAR * **grandiflora** B. P. ii. 771. *B. grandiflora* H. S. 504.
Fields, gardens and path-ways, everywhere.

* **Bonnaya tenuifolia** Spreng.; H. S. 504; B. P. ii. 771.
Wet places, occasional.

Bonnaya oppositifolia Spreng., H S. 504.
Reported by Voigt from Serampore, but the record is very doubtful, since the species is apparently confined to the Deccan.

396. Scoparia Linn.

Scoparia dulcis Linn., H. S 507; B. P. ii. 772
Fields, paths and waste places everywhere; not mentioned by Roxburgh though now one of the commonest and most troublesome of weeds, native of America

397. Veronica Linn.

Veronica Anagallis Linn.; H. S. 507; B. P. ii. 773.
Reported from the banks of the Hughli about Serampore by Voigt, a very probable record but one that should be confirmed; the species is quite plentiful in North Bengal.

Veronica agrestis Linn.; H. S. 507; B. P. ii. 773.
An occasional weed in gardens about Calcutta in the cold season; probably, however, only a casual and always reintroduced with seed from Upper India or from Europe.

398. Striga Lour.

* **Striga lutea** Lour.; H. S. 505; B. P. ii. 775.
Goghat, Western Hughli district.

* **Striga euphrasioides** Benth; H. S. 506; B. P. ii. 775.
Goghat, Western Hughli district.

399. **Centranthera** R. Br.

* **Centranthera hispida** R. Br.; H. S. 507; B. P. ii. 776.

Goghat, Western Hughli district; also recorded by Voigt from Serampore.

* **Centranthera humifusa** Wall.; H. S. 508; B. P. ii. 776.

Goghat, Western Hughli district; also recorded by Voigt from Serampore.

LXXV.—OROBANCHACEÆ.

400. **Ægineti**a Linn.

* **Ægineti**a **pedunculata** Wall.; H. S. 496; B. P. ii. 778. *Orobanche acaulis* H. S. 496.

On roots of grasses at Shibpur (*Roxburgh*) and Serampore (*Voigt*); probably, however, only casual in our area: is common in Northern Bengal.

401. **Orobanche** Tournef.

* **Orobanche indica** Ham.; H. S. 496; B. P. ii. 779.

On roots of Brassica, occasional.

LXXVI.—LENTIBULARIACEÆ.

402. **Utricularia** Linn.

* **Utricularia stellaris** Linn. f.; H. S. 494: B. P. ii. 780.

v. *Jhangi*

Floating in pools and marshes, general.

VAR. **reflexa** B. P. ii. 780.

Floating in pools and marshes, general.

* **Utricularia flexuosa** Vahl; B. P. ii. 780. *U. fasciculata* H. S. 494.

v. *Jhangi.*

Floating in pools and marshes, everywhere.

* **Utricularia exoleta** R. Br.; B. P. ii. 781. *U. diantha* H. S. 494.

v. *Chhota jhangi.*

Marshes, ditches and wet places, occasional.

Utricularia reticulata Sw. VAR. **uliginosa** B P. ii. 781. *U. reticulata* H. S. 494.

v. *Nil jhangi.*

Reported by Voigt from Serampore; the record needs confirmation but is a quite probable one; the species occurs in Burdwan.

Utricularia racemosa Wall.; B. P. ii. 781. *U. nivea* also *U. nivea* VAR. *cærulea* H. S. 494.

Both varieties of this species are recorded from Serampore by Voigt, but both records need verification; the blue-flowered variety is common in Chota Nagpur and West Bengal, the white flowered one also occurs there.

* **Utricularia bifida** Linn., B. P. ii. 781.

v. *Chhota jhangi.*

Rice-fields near Hughli, and possibly elsewhere.

LXVII.—BIGNONIACEÆ.

403. Oroxylum Vent

Oroxylum indicum Vent., B. P. ii. 787 *Calosanthes indica* H. S. 477

Occasionally planted and sometimes self-sown about Calcutta; native of India.

404. Millingtonia Linn. f.

Millingtonia hortensis Linn. f. B. P. ii. 783. *Bignonia suberosa* H. S. 476

In avenues, general, sometimes sub-spontaneous; native of Burma.

LXVIII.—PEDALINEÆ.

405. Martynia Linn.

Martynia diandra Glox.; H. S. 475, B. P. ii. 791.

v. *Bagh nokh.*

In waste places and on rubbish heaps not uncommon; native of America.

406. Sesamum Linn.

Sesamum indicum. DC., H. S. 475, B. P. ii. 792.

v. *Til*

A field crop; probably native of Asia.

LXIX.—ACANTHACEÆ.

407. Thunbergia Linn. f.

Thunbergia alata Boj.; H. S. 481; B. P. ii. 795.

In gardens, but occasionally as if wild on rubbish heaps near Calcutta.

Thunbergia grandiflora Roxb., H. S. 481; B. P. ii. 796.

v. *Nil lata.*

Recorded by Voigt from Serampore; occasionally as if wild in village-shrubberies near Calcutta, but probably only as an escape

from gardens in our area; often grown on trellises; nearest locality where wild, Western Bengal.

408. Nelsonia R. Br.

* **Nelsonia campestris** R. Br.; B. P. ii. 797. *N. tomentosa* H. S. 482.
v. *Parámul.*
Grassy glades, general.

409. Ebermaiera Nees.

* **Ebermaiera glutinosa** Wall.; B. P. ii. 798.
A weed of rice-fields, general.

410. Cardanthera Ham.

* **Cardanthera triflora** Ham.; H. S. 482; B. P. ii. 799.
v. *Kala.*
A weed of wet places and margin of ponds and ditches, general.

411. Acanthus Linn.

* **Acanthus ilicifolius** Linn.; B P. ii. 800. *Dilivaria ilicifolia* H. S. 487.
v. *Harkuch kanta, hargoza*
Sundribuns, and banks of Hughli as far north as Calcutta.

* **Acanthus volubilis** Wall.; B. P. ii. 800.
Western Sundribuns.

412. Hygrophila R. Br.

* **Hygrophila polysperma** T. And.; B. P. ii. 801. *Hemiadelphia polysperma* H. S 483.
v. *Chhota mechitta.*
Dampish spots, general.

* **Hygrophila quadrivalvis** Nees; B. P. ii. 802.
Moist places, general.

* **Hygrophila phlomoides** Nees VAR. **Roxburghii** B. P. ii. 802. *H. obovata* H. S 483.
Western Sundribuns, in wet swampy places in cleanings, rare elsewhere.

* **Hygrophila spinosa** T. And.; B. P. ii. 802. *Asteracantha longifolia* H. S. 485.
v. *Kanta kalika, kúliakhara.*
Wet or swampy places, everywhere.

413. Ruellia Linn.

* **Ruellia prostrata** Lamk. VAR. **dejecta** B. P. ii. 803. *Dipteracanthus dejectus* H. S. 483.
v. *Burigopana.*
Waste places; general.

Ruellia tuberosa Linn.; B. P. ii. 803.
In gardens and often as an escape; not yet introduced in 1845; native of America.

414. Hemigraphis Nees.

* **Hemigraphis hirta** T. And., B. P. ii. 805. *Ruellia sarmentosa* H. S. 484.
Grassy glades, occasional.

415. Phaylopsis Willd.

* **Phaylopsis parviflora** Willd.; B. P. ii. 806. *Ætheilema reniforme* H. S. 486.
Grassy glades, general.

416. Andrographis Wall.

* **Andrographis paniculata** Nees.; H. S. 493, B. P. ii. 809.
v. *Mahatita, kálmegh.*
Roadsides and waste places, everywhere.

417. Crossandra Salisb.

* **Crossandra undulæfolia** Salisb.; B. P. ii. 811.
In gardens, generally; native of India.

418. Barleria Linn.

Barleria Prionitis Linn.; H. S. 486; B. P. ii. 812.
v. *Kánta játi.*
A common hedge plant; reported by Voigt from Serampore; it is wild in West Bengal, but can hardly be claimed as wild in our area.

* **Barleria cristata** Linn.; H. S. 485; B. P. ii. 812.
v. *Játi.*
Hedges and thickets, occasional.
VAR. * **dichotoma** B. P. ii. 812. *B. dichotoma* H. S. 485.
v. *Sada játi.*
Hedges and thickets, general.

419. Asystasia Bl.

* **Asystasia gangetica** T. And.; B. P. ii. 813. *A. coromandeliana* H. S. 484.
River banks and hedges, occasional.

420. Ecbolium Kurz.

* **Ecbolium Linneanum** Kurz VAR. **dentata**; B. P. ii. 816. *Justicia dentata* H. S. 490.
v. *Udu játi.*
Hedges and thickets, general.

421. Justicia Linn.

Justicia Betonica Linn.; B. P. ii. 817. *Adhatoda Betonica* H. S. 488.
In gardens, general; native of India.

* **Justicia Gendarussa** Linn. f.; B. P. ii. 818. *Gendarussa vulgaris* H. S. 489.
v. *Jagat madun, gandho-rusa.*
Hedges and thickets, everywhere, as an escape from cultivation; often also cultivated, but it may perhaps be accepted as wild in our area.

* **Justicia quinqueangularis** Koen.; B. P. ii. 818. *Rostellularia quinqueangularis* H. S. 488.
Goghat sub-division, Hughli district; also reported by Voigt from Serampore.
VAR. * **peploides** B. P. ii. 818. *Rostellularia glaberrima* H. S. 488.
Damp waste places, general.

* **Justicia simplex** D. Don; B. P. ii. 818. *Rostellularia molliss.ma* H. S. 488.
Grassy glades, everywhere.

422. Adhatoda Nees.

* **Adhatoda Vasica** Nees; H. S. 488; B. P. ii. 819.
v. *Bakás, Vásaka.*
Hedges and village-shrubberies, everywhere.

423. Rhinacanthus Nees.

Rhinacanthus communis Nees; H. S. 490; B. P. ii. 819.
v. *Palak jui, jui pana.*
In gardens generally; native of India.

424. Peristrophe Nees.

* **Peristrophe bicalyculata** Nees; H. S. 492; B. P. ii. 820.
v. *Nasa bhaga.*
Dry waste places and fields, west of the river Hughli only.

* **Peristrophe tinctoria** Nees; H. S. 492; B. P. ii. 820.
v. *Bet rang, chatia rang.*
Village-shrubberies near Calcutta; occasionally also in native gardens, cultivated, no doubt originally an introduced plant, but where truly wild is not now known.

425. Rungia Nees.

* **Rungia parviflora** Nees. VAR. **pectinata**; H. S. 491; B. P. ii. 821.
Drier sloping banks, earth weels and waste places, general.

426. Dicliptera Juss.

* **Dicliptera Roxburghiana** Nees; H. S. 492; B. P. ii. 822.
Waste places about Calcutta, occasional; probably not truly wild in our area; it is plentiful in Northern and Eastern Bengal.

LXXX.—VERBENACEÆ.

427. Lantana Linn.

* **Lantana indica** Roxb.; H. S. 472; B. P. ii. 824. *L. gogchana* H. S. 472.
Banks of river and nálás everywhere.

Lantana Camara Linn.; B. P. ii. 825. *L. aculeata* H. S. 472.
Village-shrubberies and hedges, general, native of Central America.

428. Lippia Linn.

* **Lippia nodiflora** Rich.; B. P. ii. 825. *Zapania nodiflora* H. S. 472.
v. *Bhui-okra, chhota okra.*
Wet places, everywhere.

Lippia geminata H. B. & K., B. P. ii. 825.
Banks of river and nálás, general; native of America.

429. Stachytarpheta Vahl.

Stachytarpheta indica Vahl.; B. P. ii. 826. *S. jamaicensis* H. S. 471.
In native gardens; also sometimes as an escape; seems wild in many parts of India, but probably was originally introduced from America.

430. Verbena Linn.

* **Verbena officinalis** Linn.; H. S. 471; B. P. ii. 826.

A weed in gardens and waste places, frequent.

Though not claimed by Voigt as being wild in our area, it has quite as much right to be so considered as many of the other common weeds.

431. Duranta Jacq.

Duranta Plumieri Jacq.; H. S. 471; B. P. ii. 827.

Planted in hedges and on lawns; also sometimes sub-spontaneous in abandoned gardens and, rarely, in village-shrubberies.

432. Callicarpa Linn.

Callicarpa cana Linn.; H. S. 467; B. P. ii. 828.

v. *Arusha.*

Often planted in native gardens; sometimes as if wild in village-shrubberies; native of Malaya.

* **Callicarpa macrophylla** Vahl.; B. P. ii. 828. *C. incana* H. S. 467.

v. *Mathara.*

Village-shrubberies and roadsides, general.

* **Callicarpa longifolia** Lamk. VAR. **lanceolaria**; B. P. ii. 828. *C. lanceolaria* H. S. 467.

Village-shrubberies and roadsides, rare.

433. Tectona Linn. f.

Tectona grandis Linn. f.; H. S. 470; B P. ii. 828.

v. *Sagun.*

Planted occasionally in avenues; native of drier parts of India and Indo-China.

434. Gmelina Linn.

* **Gmelina arborea** Roxb.: H. S. 470; B P. ii. 829.

v. *Gúmbár.*

Goghat sub-division of Hughli district; elsewhere often planted or semi-wild in village-shrubberies.

Gmelina asiatica Linn.; H. S. 470; B. P. ii. 829.

v. *Badhára.*

In gardens generally; native of India.

435. Premna Linn.

* **Premna integrifolia** Linn.; B. P. ii. 830. *P. barbata* H. S. 468. *P. spinosa* H. S. 468. *P. hircina* H. S. 468.
v. *Bhút biravi, goniari.*
Banks of rivers and village-shrubberies, especially plentiful in the Sundribuns.

Premna esculenta Roxb.; H. S. 467; B. P. ii. 831.
Cultivated near villages.

436. Vitex Linn.

* **Vitex trifolia** Linn.; H. S 468; B. P. ii. 833.
v. *Pani sanbhaki.*
Hedges and thickets, general.

* **Vitex Negundo** Linn.; H. S. 469; B. P. ii. 833.
v. *Sanbhalu, nishinda.*
Hedges and thickets, general; Western Sundribuns, common.

437. Clerodendron Linn.

* **Clerodendron inerme** Gærtn.; H. S. 465; B. P. ii. 835.
v. *Ban jai, ban jumat, bat raj.*
Western Sundribuns; salt-lakes near Calcutta.

* **Clerodendron infortunatum** Gærtn.; B. P. ii. 835. *C. viscosum* H. S. 465.
v. *Bhánt.*
Roadsides, waste places, village-shrubberies; everywhere.

Clerodendron fragrans Vent.; H. S. 466; B. P. ii. 835.
In gardens everywhere, but often as an escape; native of China.

* **Clerodendron Siphonanthus** R. Br.; H. S. 465; B. P. ii. 836.
v. *Bamun-hatti.*
Waste places, everywhere.

438. Avicennia Linn.

* **Avicennia officinalis** Linn.; B. P. ii. 838. *A. tomentosa* H. S. 473.
v. *Báen, Bina.*
Western Sundribuns, very common.

LXXXI.—LABIATÆ.

439. Ocimum Linn.

Ocimum sanctum Linn.; H. S. 448; B. P. ii. 843.
v. *Tulsi, kala tulsi, krishna tulsi.*

Near temples and shrines everywhere, planted or as an escape; native of India.

Ocimum gratissimum Linn.; H. S. 448; B. P. ii. 843.

v. *Ram tulsi.*

In gardens and sometimes as an escape; native of S. E. Asia.

Ocimum Basilicum Linn.; H. S. 447; B. P. ii. 843.

v. *Babui tulsi, gulál tulsi.*

In gardens and also in waste places as if wild; native of S. E. Asia.

Ocimum viride Willd.

v. *Belati Tulsi.*

In gardens, recently introduced owing to its reputed property of keeping off mosquitoes; native of Africa.

Ocimum adscendens Willd.; H. S. 448.

v. *Ban tulsi.*

Reported by Voigt from Serampore, not at all a likely record as the species seems naturally confined to the Deccan and C. India; examples may of course have been met with at Serampore; but, if so, they are almost certain to have been casuals introduced with seed of other plants from the drier parts of India.

440. Moschosma Reichb.

* **Moschosma polystachyum** Reichb.; H. S. 449; B. P. ii. 845.

Goghat sub-division, Hughli district.

441. Coleus Lour.

Coleus aromaticus Benth.; B. P. ii. 847. *C. amboinicus* H. S. 450.

v. *Pathorchur.*

In gardens everywhere.

Coleus scutellarioides Benth.; H. S. 450; B. P. ii. 847.

In gardens generally.

442. Hyptis Jacq.

Hyptis capitata Jacq, B. P. ii. 848.

In gardens, and sometimes self-sown.

443. Pogostemon Desf.

* **Pogostemon plectranthoides** Desf.; H. S. 451; B. P. ii. 849.

v. *Jui lata, bil lata.*

Hedges and thickets, general.

444. Dysophylla Bl.

* **Dysophylla verticillata** Benth.; H. S. 453; B. P. ii. 851.
v. *Pani kala.*
Rice-fields and ditches, general.

445. Anisomeles R. Br.

* **Anisomeles ovata** R. Br.; H. S. 460; B. P. ii 853.
v. *Gobura.*
Hedges, thickets and waste places, everywhere.

446. Leonurus Linn.

Leonurus sibiricus Linn., H. S. 460; B. P. ii. 854.
v. *Gúma.*
A weed of roadsides and waste places, and one of the commonest plants in such localities, but obviously only naturalised, native of temperate Asia.

447. Leucas R Br.

* **Leucas aspera** Spreng., H. S. 461; B P ii. 855.
v. *Chhota halkúsa.*
A weed of fields and waste places, general.

* **Leucas linifolia** Spreng; H S. 462, B. P. ii 856.
v. *Halkúsa.*
A weed of fields and waste places, everywhere.

* **Leucas Cephalotes** Spreng, H S. 461; B. P. ii. 856.
v. *Bara halkúsa.*
A weed of field and waste places, fairly general.

* **Leucas mollissima** Wall.; H. S. 461; B. P. ii. 856.
Goghat sub-division, Hughli district.

* **Leucas procumbens** Desf.; H. S. 461; B. P. ii. 857.
v. *Basantá.*
A weed of gardens, fields and grassy glades, general.

448. Leonotis R. Br.

Leonotis nepetifolia R. Br.; H. S. 462; B. P. ii. 857.
v. *Khajur churi, hejurchi.*
Roadsides and waste places, general; associated with but always less common than *Leonurus sibiricus*, and like the *Leonurus* doubtless only a naturalised species anywhere in India; native of Africa.

449. Meriandra Benth.

Meriandra bengalensis Benth.; H. S. 453; B. P. ii. 858.
v. *Kafur-ka-pat.*
In native gardens, generally; native of Africa.

450. Salvia Linn.

* **Salvia plebeja** R. Br; H. S. 455; B. P. ii. 859.
v. *Koka buradi, bhu-tulsi.*
In fields and gardens, a general weed.

Salvia coccinea Linn.; H. S. 455; B. P. ii. 859.
In gardens, generally: sometimes also self-sown.

INCOMPLETE.

LXXXII.—NYCTAGINEÆ.

451. Mirabilis Linn.

Mirabilis Jalapa Linn.; H. S. 328, B. P. ii. 862.
v. *Krishno káli.*
In gardens everywhere, and often as an escape; native of S. America.

452. Boerhaavia Linn.

* **Boerhaavia repens** Linn. VAR. **procumbens** B. P. ii. 863. *B. erecta* H. S. 328.
v. *Purna.*
Waste places, fields and roadsides, everywhere.

453. Bougainvillea Comm.

Bougainvillea glabra Choisy; B. P. ii. 863.
In gardens generally; native of Brazil.

Bougainvillea spectabilis Willd.; H. S. 329, B. P. ii. 864.
In gardens, often; native of Brazil.

454. Pisonia Linn.

Pisonia aculeata Linn.; B. P. ii. 864. *P. villosa* H. S. 328.
v. *Baghachura.*
Recorded by Voigt from Serampore; it is occasionally used as a hedge in our area but is not with us a wild plant; native of India and Indo-China.

LXXXIII.—AMARANTACEÆ.

455. Deeringia R. Br.

* **Deeringia celosioides** R. Br., B. P. ii. 866. *D. indica* H. S. 315

v. *Gola mohani.*

Hedges and thickets, occasional.

456. Celosia Linn.

Celosia argentea Linn. H. S. 318, B. P. ii. 867.

v. *Sufet murgha phul*

In gardens, also self-sown everywhere; native of S. E. Asia.

Celosia cristata Linn., H. S. 318; B. P. ii. 869

v. *Lalmurgha phul*

In gardens, generally, occasionally also as an escape; native of S. E. Asia.

457. Digera Forsk.

* **Digera arvensis** Forsk., B. P. ii. 868 *D. muricata* H. S. 314.

v. *Lati mahauri, gungtiya*

Fields and roadsides everywhere.

458. Amarantus Linn.

* **Amarantus spinosus** Linn., H. S. 317; B. P. ii. 869

v. *Kanta nuti, kanta miris*

Fields and roadsides, everywhere.

* **Amarantus gangeticus** Linn., H. S. 316, B. P. ii. 870.

v. *Lal shak, rakna shak.*

Cultivated in many races and varieties, the chief of these, apart from the type, being the *bins pati nati* (*A. lanceolatus*), the *lal bans pati nati* (*A. atropurpureus*), and the *gobura nati* (*A. lividus*).

* **Amarantus tristis** Linn; H. S. 315 *A. gangeticus* VAR. *tristis*; B. P. ii. 870. *A. polygamus* H. S. 870.

v. *Champa nati.*

Cultivated in many races and varieties.

* **Amarantus mangostanus** Linn., B. P. ii. 871.

v. *Shak.*

A weed of fields and gardens, everywhere.

* **Amarantus viridis** Linn; H. S. 316; B. P. ii. 871.

v. *Ban nati.*

A weed of fields and gardens, general.

* **Amarantus fasciatus** Roxb.; H. S. 316. *A. viridis* VAR. *fasciata* B. P. ii. 871.
v. *Tun-tuni nati.*
A weed of fields and gardens, general.

* **Amarantus Blitum** Linn. VAR **oleracea**; B. P. ii. 871. *A. oleraceus* VAR. *alba* H. S. 316.
v. *Sadi nati.*
Cultivated generally.

* **Amarantus polygamus** Linn.; B. P. ii. 871. *A. polygonoides* H. S. 315.
v. *Chiru nati.*
A weed of fields and gardens, general.

* **Amarantus tenuifolius** Willd.; H. S. 315; B. P. ii. 871.
v. *Ghenti nati, jelchumli.*
A weed of roadsides, waste places and fields, everywhere.

459. Pupalia Juss.

Pupalia atropurpurea Moq.; B. P. ii. 872. *Desmochæta atropurpurea* H. S. 319.
v. *Duya kuya, kuya duya.*
Recorded by Voigt from Serampore, a quite probable record, as the species is plentiful in districts to the west of our area.

460. Psilotrichum Moq.

* **Psilotrichum ferrugineum** Moq.; H. S. 318; B. P. ii. 873.
v. *Rakto sirinchi, lal sirinchi.*
A weed of fields and wet places, mostly to the east of the Hughli.

461. Ærua Forsk.

* **Ærua lanata** Juss.; H. S. 317; B. P. ii. 874.
v. *Chaya.*
Waste places and thickets, not uncommon.

Ærua scandens Mart.; H. S. 317; B. P. ii. 874.
v. *Nuriya.*
Reported by Voigt from Serampore; the record is possible but needs confirmation; the species in common in districts to the west of our area.

462. Achyranthes Linn.

* **Achyranthes aspera** Linn.; H. S. 318; B. P. ii. 875.
v. *Apáng.*
Waste places and roadsides, everywhere.

463. Alternanthera Forsk.

* **Alternanthera sessilis** R. Br.; H. S. 318; B. P. ii. 875.
v. *Chanchi.*
Waste places, roadsides and fields, everywhere.

464. Gomphrena Linn.

Gomphrena globosa Linn., H. S. 318; B. P. ii. 876.
v. *Gul makhmal.*
In gardens, and in waste places as an escape, general; probably originally introduced from America.

LXXXIV.—CHENOPODIACEÆ.

465. Suæda Linn.

* **Suæda maritima** Dumort.; B. P. ii. 878. *Salsola indica* H. S. 322.
Western Sundribuns.

466. Chenopodium Linn.

* **Chenopodium album** Linn. H. S. 321; B. P. ii. 879. *C laciniatum* H. S 322.
v. *Chan lan betu, betu shak.*
In gardens and also as a weed, everywhere.

Chenopodium ambrosioides Linn.; H S. 321, B. P. ii. 879.
In waste places, naturalised, general; originally American.

467. Beta Linn.

Beta vulgaris Linn.; H. S. 320; B. P. ii. 879. *B. bengalensis* H. S. 321.
v. *Palang shak.*
In native gardens, general; native of Europe and temperate Asia.

468. Spinacia Linn.

Spinacia oleracea Linn.; H. S. 320; B. P. ii. 880. *S. tetrandra* H. S. 320.
v. *Palang, pinis.*
In gardens, general; native of Africa.

469. Arthrocnemum Moq.

* **Arthrocnemum indicum** Moq.; B. P. ii. 881. *Salicornia indica* H. S. 320.
v. *Jadu palang.*
Western Sundribuns.

470. Salicornia Linn.

* **Salicornia brachiata** Roxb.; H. S. 329; B. P. ii. 881.
Western Sundribuns.

471. Basella Linn.

* **Basella rubra** Linn.; B. P. ii. 882. *B. alba* H. S. 322. *B. cordifolia* H. S. 322.
v. *Poi, ban poi.*
In gardens, cultivated; also in hedges and thickets, everywhere.

LXXXV.—PHYTOLACCACEÆ.

472. Rivna Linn.

Rivina humilis Linn.; B. P. ii 883. *R. lævis* H. S. 323.
In village-shrubberies, naturalised, not uncommon; native of America.

LXXXVI.—POLYGONACEÆ.

473. Polygonum Linn.

* **Polygonum plebejum** R. Br. VAR. **effusa**; B. P. ii. 886.
In damp places, everywhere.
VAR. * **brevifolia**; B. P. ii. 886.
In dry places, west of river Hughli.
VAR. * **elegans**: B. P. ii. 886. *P. herniarioides* H. S. 325.
In dry uncultivated or waste places, everywhere.

* **Polygonum orientale** Linn.; H. S. 324; B. P. ii. 886.
v. *Bara pani mirich.*
In damp places, general.

Polygonum tomentosum Willd.; H. S. 324; B. P. ii. 886.
Reported by Voigt from Serampore; not improbably, but the record needs confirmation.

Polygonum lanigerum R. Br.; H. S. 325. VAR. **effusa**; B. P. ii. 886.
v. *Swet pani mirich.*
Reported by Voigt from Serampore; quite possibly, but the record needs confirmation.

* **Polygonum glabrum** Willd.; H. S. 325; B. P. ii. 886.
In ditches and swamps, general.

Polygonum lapathifolium Linn.; B. P. ii. 325. *P. nutans* H. S. 324.
Once collected by Kurz near Shibpur, probably, however, only as an escape from the Botanic garden where it occurs as a casual

immigrant. It is a common species in Eastern Bengal and Assam. *P. stagninum* is a species to be looked for in our areas as it is common both to the west and the north-east of our districts, though it has not been recorded by Voigt or by any subsequent collector.

* **Polygonum barbatum** Linn.; B. P. ii. 887, not of H. S. *P. rivulare* H. S. 325.
v. *Bikh anjubas.*
In damp places, general.

* **Polygonum serrulatum** Lagasc.; B. P. ii. 887. *P. flaccidum* H. S. 325.
v. *Pani mirich.*
In ditches and swampy places, general.

* **Polygonum Hydropiper** Linn.; B. P. ii. 887.
v. *Pakurmal.*
In ditches and beside ponds, not infrequent.

* **Polygonum flaccidum** Meisn.; B. P. ii. 887, not of H. S. *P. tenellum* H. S. 325.
In swamps and ditches, occasional.

474. Rumex Linn.

* **Rumex maritimus** Linn.; B. P. ii. 888. *R. Wallichianus* H. S. 326.
v. *Ban palang.*
In marshy spots, general.

* **Rumex dentatus** Linn.; B. P. ii. 889.
In waste places, general.

Rumex vesicarius Linn.; H. S. 326; B. P. ii. 889.
v. *Chuka palang.* Country Sorrel.
In native gardens, occasionally; native of Africa.

475. Antigonon Endl.

Antigonon leptopus Endl.; B. P. ii. 889.
Sandwich Island creeper.
In gardens, general; growing on trellises and fences.

LXXXVII.—ARISTOLOCHIACEÆ.

476. Aristolochia Linn.

* **Aristolochia indica** Linn.; H. S. 313; B. P. ii. 891.
v. *Isharmal.*
Hedges, roadsides and waste places, general.

LXXXVIII.—PIPERACEÆ.

477. Piper Linn.

Piper Chaba Hunter; H. S. 299; B. P. ii. 893.
v. *Choi.*
Cultivated generally; native of Malaya.

Piper Betle Linn.; H. S. 299; B. P. ii. 893.
v. Pán, tambuli. Betle-leaf.
Cultivated generally; native of S. E. Asia.

*** Piper longum** Linn.; H. S. 299; B. P. ii. 893.
v. *Pipla, pipla-mal.* Long Pepper.
In hedges and thickets, general, but possibly not truly wild in our area; native of India.

Piper nigrum Linn.; H. S. 299; B. P. ii. 893.
v. *Gulmirich, kala mirich.* Black Pepper.
Cultivated generally.

478. Peperomia Ruiz & Pav.

Peperomia pellucida Kunth; B. P. ii. 894.
Paths, roadsides, waste places, open glades, everywhere; introduced since 1845; native of America. Now one of the most plentiful of our annual weeds.

LXXXIX.—LAURINEÆ.

479. Cinnamomum Bl

Cinnamomum Tamala Fr. Nees; B. P. ii. 893. *C. albiflorum* H. S. 308.
v. *Tespat.*
Often planted in native gardens; native of E Himalaya and Indo-China.

Cinnamomum Camphora Fr. Nees; B. P. ii. 899. *Camphora officinarum* H. S. 308.
v. *Kaphur.*
Occasionally planted in native gardens; native of China.

480. Litsæa Lamk.

*** Litsæa sebifera** Pers.; B. P. ii. 902. *Tetranthera Roxburghii* VAR. **apetala** H. S. 309.
v. *Kukur chita.*

Thickets and village-shrubberies, everywhere.

VAR. * **glabraria** Hook. f.; B. P. ii. 902. *Tetganthera laurifolia* H. S. 310.

Hedges, thickets and village-shrubberies; less common than the preceding and chiefly west of the river Hughli.

* **Litsæa polyantha** Juss.; B. P. ii. 903. *Tetranthera monopetala* H. S. 310.

v. *Bara kukur chita.*

Thickets and village-shrubberies, general.

* **Litsæa salicifolia** Hook. f. VAR. **laurifolia** Hook. f.; B. P. ii. 903.

v. *Sum.*

Thickets, east of the river Hughli, occasional.

481. Cassytha Linn.

Cassytha filiformis Linn.; H. S. 312; B. P. ii. 904.

v. *Akás-bél.*

Parasitic in hedges and thickets, general but not plentiful.

XC.—LORANTHACEÆ.

482. Loranthus Linn

* **Loranthus Scurrula** Linn. VAR. **bengalensis**; B. P. ii. 911.

v. *Manda.*

Parasitic on trees, general.

* **Loranthus longiflorus** Desr.; H S. 54; B. P. ii. 911.

v. *Bara manda.*

Parasitic on trees, everywhere.

* **Loranthus globosus** Roxb.; H. S. 54; B. P. ii. 912.

v. *Chhota manda.*

Parasitic on trees, everywhere.

483. Viscum Linn.

* **Viscum monoicum** Roxb.; B. P. ii. 912.

v. *Manda, banda.*

Parasitic on trees in the Western Sundribuns, less often near Calcutta.

XCI.—EUPHORBIACEÆ.

484. Euphorbia Linn.

Euphorbia antiquorum Linn.; H. S. 162; B. P. ii. 923.

v. *Bajvaran, tikata sij.*

In hedges generally; native of drier parts of India.

Euphorbia neriifolia Linn.; B. P. ii. 923. *E. ligularia* H. S. 161.

v. *Mansa sij.*

In hedges occasionally; native of drier parts of India.

Euphorbia Nivulia Ham.; H. S. 162; B. P. ii. 923.

v. *Sij.*

Hedges and village-shrubberies everywhere; native of drier parts of India.

Euphorbia Tirucalli Linn.; H. S. 162; B. P. ii. 924.

v. *Lanka sij.*

Hedges generally; native of Africa.

Euphorbia pulcherrima Willd; B. P. ii. 924. *Poinsettia pulcherrima* H. S. 164.

Gardens and lawns, general; native of America.

Euphorbia geniculata Ortega; B. P. ii. 924. *E. prunifolia* H. S. 163

In gardens occasionally, sometimes also self-sown on rubbish heaps and in waste places; native of S. America.

Euphorbia heterophylla Linn.; B. P. ii. 924.

In gardens generally, also naturalized in waste places about Calcutta; native of America.

* **Euphorbia dracunculoides** Lamk; H. S. 164; B. P. ii. 924.

v. *Jychi, chhagal puputi.*

A field weed, west of the river Hughli only.

Euphorbia graminea Jacq.; B P. ii. 924.

A weed of waste places about Calcutta; recently introduced; native of America.

* **Euphorbia hypericifolia** Linn. VAR. **indica**; B. P. ii. 924. *E. uniflora* H. S. 163.

Fields and waste places, general.

VAR. **parviflora**; B. P. ii. 924. *E. parviflora* H. S. 163.

Fields and waste places, west of the Hughli.

* **Euphorbia pilulifera** Linn.; B. P. ii. 925. *E. hirta* H. S. 163.

v. *Bara kerui.*

A weed of fields, gardens, waste places and roadsides, everywhere.

* **Euphorbia thymifolia** Linn.; H. S. 163; B. P. ii. 925.

v. *Swet kerui.*

A weed of fields, gardens and paths, everywhere.

* **Euphorbia microphylla** Heyne; B. P. ii. 925. *E. Chamæsyce* H. S. 163.
v. *Chhota kerui.*
A weed of waste places, west of the Hughli, rare.

485. Pedilanthus Neck.

Pedilanthus tithymaloides Poit.; H. S. 164; B. P. ii. 925.
v. *Belati sij.*
A hedge plant everywhere, sometimes also naturalized in village-shrubberies; native of America.

486. Bischofia Bl.

Bischofia javanica Bl.; B. P. ii. 926. *Stylodiscus trifoliatus* H. S. 160.
Planted in avenues and occasionally on roadsides; native of India, Indo-China and Malaya.

487. Bridelia Willd

* **Bridelia stipularis** Bl., B. P. ii. 928. *B. scandens* H. S. 156.
v. *Harin hira.*
Village-shrubberies, also Western Sundribuns.

* **Bridelia tomentosa** Bl.; B. P. ii. 928. *B. lanceæfolia* H. S. 156.
v. *Mindri, sirai.*
Village-shrubberies, occasional.

488. Glochidion Forst.

Glochidion multiloculare Voigt; H. S. 152; B. P. ii. 930. *Agyneia puber* H. S. 155.
Reported by Voigt from Serampore, a quite possible record, but one that needs confirmation; the shrub may be looked for in village-shrubberies; it is common in most other parts of Bengal.

489. Flueggea Willd.

* **Flueggea microcarpa** Bl.; B. P. ii. 931. *F. retusa* H. S. 152 *F. virosa* H. S. 152.
Village-shrubberies, hedges, waysides and river banks, general.

490. Agyneia Vent.

* **Agyneia bacciformis** A. Juss.; B. P. ii. 932. *Phyllanthus bacciformis* H. S. 154.
Damp fields in 24-Pergunnahs, south-east of Calcutta, also in the North-Western Sundribuns.

491. Breynia Forst.

* **Breynia rhamnoides** Muell.-Arg.; B. P. ii. 933. *Phyllanthus reticulatus* H. S. 154.
v. *Kali sitki, hamkatoguli.*
Hedges and thickets, general.

492. Phyllanthus Linn.

* **Phyllanthus reticulatus** Poir.; B. P. ii. 935. *P. multiflorus* H. S. 154.
v. *Panjuli.*
Hedges and thickets, everywhere

Phyllanthus Emblica Linn.; B. P. ii. 935. *Emblica officinalis* H. S. 153.
v. *Amla.*
In gardens, occasionally; native of drier parts of India.

Phyllanthus maderaspatensis Linn.; H. S. 153; B. P. ii. 935. *P. obcordatus* H. S. 154.
Both the decumbent form (*P. maderaspatensis* proper) and the tall slender form (*P. obcordatus*) of this species are reported from Serampore by Voigt, but both records are somewhat unlikely and both need confirmation; the species is common in the drier parts of India, but there are no specimens of any of its varieties from our area in the Calcutta herbarium.

* **Phyllanthus urinaria** Linn.; H. S. 154; B. P. ii. 935.
v. *Hazar mani.*
In waste shady places, general.

* **Phyllanthus simplex** Retz; H. S. 153; B. P. ii 936.
A weed in cultivated ground, mostly west of the river Hughli.

* **Phyllanthus Niruri** Linn.; H. S. 154; B. P. ii. 936.
v. *Bhui amla, sada hazar mani.*
A weed of cultivated ground, everywhere.

Phyllanthus distichus Muell.-Arg.; B. P. ii. 936. *Cicca disticha* H. S. 153.
v. *Noari, nubari, loda, hariphul.*
In native gardens, general; native place uncertain.

493. Putranjiva Wall.

Putranjiva Roxburghii Wall.; H. S. 296; B. P. ii. 936.
v. *Jia pata, putranjiva.*
In avenues and on roadsides, also often spontaneously in village-shrubberies; native of India.

494. Antidesma Linn.

* **Antidesma Ghæsembhilla** Gærtn.; B. P. ii. 938.
v. *Khudi jamb, tim tóa.*
In village-shrubberies, general.

* **Antidesma diandrum** Roth.; B. P. ii. 938.
v. *Multa.*
In village-shrubberies, occasional.

495. Jatropha Linn.

Jatropha multifida Linn., H. S. 159; B. P. ii. 941.
In native and other gardens, and near temples and shrines, cultivated; also occasionally self-sown in waste places; native of America.

Jatropha gossypifolia Linn.; B. P. ii. 941.
v. *Lal bherenda.*
Waste places, roadsides, village-shrubberies everywhere, never cultivated; native of America. Though now one of the commonest and most striking of the shrubby weeds of our area, this species is not included in Voigt's list, published so recently as 1845.

Jatropha Curcas Linn.; H. S. 158; B. P. ii. 941.
v. *Bagh bherenda.*
In native gardens and hedges everywhere, and sometimes subspontaneous in village-shrubberies.

496. Aleurites Forst.

Aleurites moluccana Willd.; B. P. ii. 942. *A. triloba* H. S. 159.
v. *Akrot.*
Planted generally; Voigt even records it from Serampore as wild, and it does sometimes occur sub-spontaneously, but it has no claim to be indigenous; native of Papuasia.

497. Croton Linn.

* **Croton oblongifolius** Roxb.; H. S. 156; B. P. ii. 943.
v. *Chucka, bara gachh.*
Village-shrubberies, everywhere.

* **Croton caudatus** Geisel.; B. P. ii. 943. *C. drupaceus* H. S. 156.
v. *Nan bhantúr.*
Village-shrubberies and thickets on river banks, chiefly east of the river Hughli; also in the North-Western Sundribuns.

* **Croton Tiglium** Linn.; H. S. 156; B. P. ii. 943.
v. *Jayapala, jeypal.*

In hedges near villages everywhere, also often self-sown in village thickets; native of S. E. Asia.

Croton sparsiflorus Morong.

Abundant in waste places to the south of Calcutta, particularly about Diamond Harbour, a recently introduced weed; native of Paraguay.

498. Codiæum Juss.

Codiæum variegatum Bl ; B. P. ii. 944. *C. chrysosticta* H. S. 157.

In gardens everywhere : the "Croton" of English denizens; native of the Moluccas.

499. Chrozophora Neck.

* **Chrozophora plicata** A. Juss.; H. S. 156, B. P. ii. 944.

v. *Khûdi okra.*

Waste ground and dry fields, everywhere.

500. Gelonium Roxb.

* **Gelonium multiflorum** A. Juss.; B. P. ii. 945. *G. fasciculatum* H. S. 158.

v. *Ban naranga.*

In village-shrubberies, general.

Voigt also reports *G. lanceolatum*, a native of S. India and Ceylon, from Serampore, but if the species did exist there in 1845, it can only have been as a planted tree.

501. Baliospermum Bl.

* **Baliospermum axillare** Bl.; B. P. ii. 946. *Croton polyandrum* H. S. 156.

v. *Dánti, hakun.*

Waste places and fields in Goghat sub-division; also reported by Voigt from Serampore.

502. Acalypha Linn.

* **Acalypha fallax** Muell.-Arg.; B. P. ii. 947.

Fields, gardens and waste places about Calcutta, very common.

* **Acalypha indica** Linn.; H. S. 160; B. P. ii. 948.

v. *Makta juri, kokli.*

Fields, gardens and waste places, general.

Acalypha ciliata Forsk.; H. S. 159; B. P. ii. 948.

Reported by Voigt from Serampore, but the record needs confirmation; the species is found in Behar and westward to Arabia and Africa.

503. Trewia Linn.

*** Trewia nudiflora** Linn.; H. S. 279; B. P. ii 948.
v. *Pitáli.*
River banks, everywhere.

504. Mallotus Lour.

*** Mallotus repandus** Muell. Arg.; B. P ii 949. *Rottlera laccifera* H. S 157.
v. *Akús, nun bhantúr.*
Village-shrubberies and hedges, general.

Mallotus philippinensis Muell Arg., B. P. ii. 950. *Rottlera tinctor.a* H S. 157.
v. *Kamalá.*
Sometimes planted about villages, native of the drier parts of India. Voigt records this as not having flowered in the Royal Botanic Garden between 1797, when it was first introduced, and 1814, and adds that at Serampore it had not flowered up to 1845. In some years at least it flowers freely, and occasionally self-sown young plants are to be met with in the Royal Botanic Garden.

505. Ricinus Linn.

Ricinus communis Linn., H. S. 158, B. P. ii. 952.
v. *Bherenda.*
Cultivated everywhere in gardens and fields, and very common spontaneously in village shrubberies, native of Africa.

506. Tragia Linn.

*** Tragia involucrata** Linn.; H. S. 160; B. P. ii 952.
v. *Bichchati.*
Hedges, everywhere. Voigt also records the narrowly 3-partite leaved variety (VAR. **cannabina** = *T cannabina* Linn.) from Serampore, this is a quite possible record, but it needs to be confirmed.

507. Sapium P Br.

*** Sapium indicum** Willd., H. S. 161; B. P. ii. 954.
v. *Hurna batul.*
Western Sundribuns.

Sapium sebiferum Roxb.; B. P ii. 954. *Stillingia sebifera* H. S. 161.
v. *Móm china.*
In village-shrubberies, general; native of China.

508. Excœcaria Linn.

*** Excœcaria Agallocha** Linn.; H. S. 161; B. P. ii. 955.
v. *Géngwa, géo, ghéria.*
Western Sundribuns; salt lakes near Calcutta and banks of Hughli as far north as Uluberia.

XCII.—URTICACEÆ.

509. Trema Lour.

*** Trema orientalis** Bl.; B. P. ii. 960. *Sponia orientalis* H. S. 294.
v. *Jilun, chikun.*
Village-shrubberies, hedges and waste places, everywhere.

510. Cannabis Linn.

Cannabis sativa Linn.; H. S. 282; B. P. ii. 960.
v. *Ganja.* The Hemp Plant.
A prohibited plant in our area, but occasionally occurring as a roadside weed; native of Siberia.

511. Fleurya Gaud.

*** Fleurya interrupta** Gaud.; B. P. ii. 961. *Bœhmeria interrupta* H. S. 281.
v. *Lal bichchiti.*
Waste places and roadsides, general.

512. Pilea Lindl.

*** Pilea microphylla** Liebn.; B. P. ii. 962.
Damp paths, old walls, rubbishy places; everywhere.

513. Bœhmeria Jacq.

Bœhmeria nivea Hook. & Arn.; B. P. ii. 964. *Urtica nivea* H. S. 280.
v. *Kankhúra.*
Occasionally cultivated, but not by natives, near Calcutta.

514. Pouzolzia Gaud.

*** Pouzolzia indica** Gaud.; B. P. ii. 965.
Waste places, roadsides and fields, west of the river Hughli only, and always rare.
VAR. *** alienata** Wedd.; B. P. ii. 965. *Urtica tuberosa* H. S. 280 (*not* U. tuberosa *Roxb.*).
v. *Chandar muli.*
Waste places, roadsides and fields, everywhere.

515. Broussonetia Vent.

Broussonetia papyrifera Vent.; H. S. 284; B. P. ii. 967.

Occasionally planted and wherever this is the case readily springing up spontaneously: native of Eastern Asia.

516. Morus Linn.

Morus indica Linn.; H. S. 283; B. P. ii. 968.

v. *Tút, tutri.*

Cultivated, but very rarely so in our area; native of the Himalaya.

517. Streblus Lour.

* **Streblus asper** Lour.; B. P. ii. 969. *Trophis aspera* H. S. 291.

v. *Shióra.*

Hedges and village-shrubberies, everywhere.

518. Artocarpus Forst.

Artocarpus integrifolia Linn. f.; H. S. 289; B. P. ii. 971.

v. *Kathál.* The Jack Fruit.

Planted everywhere; sometimes as if wild in village-shrubberies; native of India.

Artocarpus Lakoocha Roxb.; H. S. 290; B. P. ii. 971.

v. *Déphul, lakúch.*

In gardens, frequent; occasionally as if wild in village-shrubberies; native of India.

In one or two compounds within the city of Calcutta, but not elsewhere, examples of the Bread Fruit tree (*Artocarpus incisa*) are to be met with. Though it can be made to live in the vicinity of buildings in the town, it does not survive when planted in suburban gardens.

519. Ficus Linn.

Ficus Benjamina Linn. VAR. **comosa** Kurz; B. P. ii. 979.

Planted in avenues; native of S. E. Asia.

* **Ficus bengalensis** Linn.; B. P. ii. 979. *F. indica* H. S. 286.

v. *Bar, but.*

Planted, but also wild or at least self-sown on tombs and trees; native of India.

* **Ficus retusa** Linn. VAR. **nitida** King; B. P. ii. 980. *F. Benjamina* H. S. 289.

v. *Jir, sir.*

In village-shrubberies and in Sundribuns forests.

* **Ficus religiosa** Linn.; H. S. 287; B. P. ii. 980.
v. *Asvattha, pipal.*
In village-shrubberies and on old buildings, everywhere.

* **Ficus Rumphii** Bl.; H. S. 287; B. P. ii. 980.
v. *Gaiasvattha.*
In village-shrubberies and on river banks; also Sundribuns.

* **Ficus infectoria** Roxb.; B. P. ii. 981. *F. venosa* H. S. 287.
v. *Pakúr.*
Village-shrubberies, general.

* **Ficus heterophylla** Linn.; B. P. ii. 981. *F. rubescens* H. S. 285.
v. *Gaori sheora, ghoti seora.*
In damp places, occasional.
VAR. * **repens** King; B. P. ii. 981. *F. repens* H. S. 285.
v. *Bhui dumar.*
Edges of ponds and ditches, general.

* **Ficus hispida** Linn. f.; B. P. ii. 981. *F. oppositifolia* H. S. 288.
v. *Dumar, kák dumar.*
Hedges and thickets, everywhere.

Ficus pumila Linn.; B. P. ii. 982.
Grown generally on walls as a substitute for Ivy.

* **Ficus glomerata** Roxb.; H. S. 288; B. P. ii. 983.
v. *Jagya dumar, yajna dumar.*
In village-shrubberies, occasional.

XCIII.—CASUARINEÆ.

520. Casuarina Forst.

Casuarina equisetifolia Forst.; B. P. ii. 985. *C. muricata* H. S. 297.
v. *Belati jhau.*
Avenues and roadsides, but also very commonly self-sown; native of sea coasts from Polynesia to Chittagong.

XCIV.—CERATOPHYLLEÆ.

521. Ceratophyllum Linn.

* **Ceratophyllum demersum** Linn.; B. P. ii. 990. *C. verticillatum.* H. S. 293.
v. *Jhangi.*
In ponds and ditches, everywhere.

GYMNOSPERMEÆ.

XCV.—CONIFERÆ.

522. Thuya Linn.

Thuya orientalis Linn ; H. S. 557 ; B. P. ii 992.
In gardens and on lawns about Calcutta; native of China.

523. Cupressus Tournef.

Cupressus sempervirens Linn. ; H. S. 558.
v. *Saras.*
In gardens, occasionally ; native of the Orient.

XCVI.—CYCADACEÆ.

524. Cycas Linn.

Cycas revoluta Thunb , H. S 555 , B P. ii 993
In gardens and on lawns about Calcutta ; native of Japan.

MONOCOTYLEDONES.

XCVII.—HYDROCHARIDEÆ.

525. Hydrilla Rich.

* **Hydrilla verticillata** Casp ; H S. 617 , B. P. ii. 995
v. *Jhangi kuralı.*
In ponds, everywhere.

526. Lagarosiphon Harv.

* **Lagarosiphon Roxburghii** Benth ; B. P. ii 995. *Vallisneria alternifolia* H. S. 618.
v. *Rasna jhangi.*
In ponds, general.

527. Vallisneria Linn.

* **Vallisneria spiralis** Linn. ; H. S. 617 ; B. P. ii. 996.
v. *Syala.*
In ponds, everywhere.

528. Blyxa Thouars.

* **Blyxa Roxburghii** Rich. ; B. P. ii. 996. *B. octandra* H. S. 618.
v. *Pata syala.*
In ponds, general.

529. Hydrocharis Linn.

* **Hydrocharis cellulosa** Ham., B. P. ii. 997.
In ponds, north-east of Calcutta, rather rare.

530. Ottelia Pers.

* **Ottelia alismoides** Pers ; H S. 618, B. P. ii 997.
v. *Parmi kalla, pani kalla*
In ponds, everywhere.

XCVIII.—ORCHIDACEÆ.

531. Dendrobium Sw.

* **Dendrobium anceps** Sw., B. P. ii. 1009. *Aporum anceps* H S 623.
Western Sundribuns.

* **Dendrobium Pierardi** Roxb. H S. 623, B. P. ii 1009.
Western Sundribuns.

532. Pachystoma Lindl.

* **Pachystoma senile** Reichb. f., B. P. ii. 1014. *Geodorum ramentaceum* H. S. 628.
In grassy places, rare

533. Eulophia R. Br.

* **Eulophia graminea** Lindl., B. P ii. 1016. *E. virens* H. S. 629 (the Bengal plant).
v. *Badbári.*
In dry grassy places, west of the Hughli, rare.

534. Geodorum Jacks.

* **Geodorum dilatatum** R. Br., H. S. 628, B. P. ii. 1017.
In grassy glades, not uncommon.

Geodorum purpureum R. Br.; H S. 628.
Recorded by Voigt from Serampore, quite a possible record, but requires confirmation; native of India.

535. Luisia Gaud.

* **Luisia brachystachys** Bl., B. P ii. 1019. *Cymbidium triste* H. S. 627 partly.
Western Sundribuns, common.

536. Vanda R. Br.

* **Vanda Roxburghii** R. Br.; H. S. 629; B. P. ii. 1021.
v. *Nái, rasna, banda.*
On trees, everywhere.

537. Saccolabium Bl.

* **Saccolabium papillosum** Lindl.; H. S. 630; B. P. ii. 1022.
On trees, rare to north of the Sundribuns, not infrequent in Sundribun forests.

538. Cleisostoma Bl.

Cleisostoma micranthum K. & P.; B. P. ii. 1023. *Saccolabium micranthum* H. S. 630.
Reported from Serampore by Voigt, a quite possible record, but it needs confirmation.

539. Sarcanthus Lindl.

* **Sarcanthus insectifer** Reichb. f.; B. P. ii. 1023.
Western Sundribuns, on trees, very common.

540. Didymoplexis Griff.

* **Didymoplexis pallens** Griff., B. P. ii. 1025.
In shady thickets, general.

541. Pogonia Juss.

* **Pogonia plicata** Lindl.; H. S. 632; B. P. ii. 1026.
In shady thickets, general.

* **Pogonia juliana** Wall.; H. S. 632, B. P. ii. 1026.
In shady thickets, rare.

* **Pogonia carinata** Lindl.; H. S. 632; B. P. ii. 1026.
In shady thickets, general.

542. Zeuxine Lindl.

* **Zeuxine sulcata** Lindl.; H. S. 633; B. P. ii. 1029.
v. *Swet huli.*
In grassy open spaces, general.

543. Habenaria Willd.

* **Habenaria digitata** Lindl.; B. P. ii. 1032.
Grassy places, very rare.

Habenaria commelinifolia Wall.; H. S. 632; B. P. ii. 1033.

Reported from Serampore by Voigt, the record needs confirmation.

* **Habenaria marginata** Colebr.; H. S. 632; B. P. ii. 1033.
Grassy places, very rare

* **Habenaria viridiflora** R Br.; B. P. ii. 1033. *H. tenuis* H. S. 632.
Grassy places, very rare.

XCIX.—SCITAMINEÆ.

544. Globba Linn.

Globba sessiliflora Sims.
In gardens, drops its bulbils freely and thereby readily comes up spontaneously in garden borders and in shady grassy places; native of Burma.

545. Kaempferia Linn.

Kaempferia Galanga Linn.; H. S. 566; B. P. ii. 1038.
v. *Chandu múla, humula.*
In gardens, general: native of S. E. Asia

Kaempferia rotunda Linn; H. S 566; B. P. ii. 1038.
v. *Bhui champa.*
In gardens, occasional, native of S. E. Asia.

546. Hedychium Koen

Hedychium coronarium Koen; H. S. 568· B. P. ii. 1039.
v. *Gorakh natha, dulala champa.*
In gardens and also sometimes in village-shrubberies, but though reported by Voigt from Serampore (as wild) is probably always an escape in our area; native of S. E. Asia.

547. Curcuma Linn.

* **Curcuma aromatica** Salisb.; H. S. 563; B. P. ii. 1042.
v. *Jangli haldi, ban haldi.*
In village-shrubberies about Calcutta and elsewhere in our districts.

Curcuma Zedoaria Roscoe, H. S. 564; B. P. ii. 1042.
v *Kachúra.*
Cultivated pretty generally.

Curcuma cæsia Roxb.; H. S. 563; B. P. ii. 1042.
v. *Kala haldi.*
Reported by Voigt from Serampore; a possible record, since the species is common immediately to the west of our area, but one that needs confirmation.

* **Curcuma ferruginea** Roxb.; H. S. 563; B. P. ii. 1042.
Village thickets near Shibpur.

* **Curcuma rubescens** Roxb.; H. S. 564; B. P. ii. 1042.
Village-shrubberies, general.

Curcuma longa Linn.: H. S 565; B. P. ii. 1042.
v. *Haldi.*
Cultivated generally.

Curcuma Amada Roxb.; H. S. 564; B. P. ii. 1042.
v. *Am ada.*
Cultivated generally.

548. Zingiber Adans.

Zingiber Zerumbet Sm.; H S. 562; B. P. ii. 1045.
v. *Maha bar bach, nar kachúr.*
Cultivated and as if wild in village-shrubberies, native of S. E. Asia.

Zingiber Cassumunar Roxb., H. S. 562; B. P. ii. 1045.
v. *Ban-ada.*
Cultivated and as if wild in village-shrubberies and on abandoned sites in the Sundribuns; native of India.

Zingiber officinale Roscoe; H. S. 561; B. P. ii. 1045.
v. *Adrak, ada.*
Cultivated sparingly; native of S. E. Asia.

549. Costus Linn.

* **Costus speciosus** Sm., H. S. 572; B. P. ii. 1045.
v. *Kust, keu.*
In village-shrubberies and shady waste places.

550. Alpinia Linn.

Alpinia Galanga Sw.; H. S. 570; B. P. ii. 1047.
v. *Kulanjan.*
In gardens, occasionally.

* **Alpinia Allughas** Roscœ; H. S. 570; B. P. ii. 1047.
v. *Taro, taruko.*
Muddy river banks, general.

551. Canna Linn.

Canna indica Linn.; H. S. 576. VAR. **orientalis** B. P. ii. 1047.
v. *Sbha jaya, sarba jaya.*

In gardens everywhere, but also very general in waste places as an escape: native of Eastern Asia.

552. Maranta Linn.

Maranta arundinacea Linn.; H. S. 575; B. P. ii. 1048.

v. *Tikhur*. Arrowroot.

Cultivated occasionally about Calcutta; native of the West Indies.

The name *Tikhur* is applied to and was probably originally restricted to various species of *Curcuma*.

553. Musa Linn.

Musa sapientum Linn.; B. P. ii. 1050. *M. paradisaica* H. S. 1050.

v. *Ram kela, kantali kela, kach kela*. Plantain.

Cultivated in numerous races, and also occurring in village-shrubberies as if wild: native of India. The vernacular name for all the forms is *kela*. The *ram kela* is the form with numerous black seeds that is occasionally found about villages; it does not, however, quite agree with the wild form of the species that occurs in the forests of Chota Nagpur and Chittagong, but is rather a form, feral by reversion, of the *kantali kela* or Cooking Plantain which is to be found in several races most of which may have been locally evolved. The numerous races, of *kach kela* or Dessert Plantain, on the other hand, would appear to be in no case of local origin, but to have been introduced from Southern India, Malaya, and possibly elsewhere.

C.—BROMELIACEÆ.

554. Ananassa Adans.

Ananassa sativa Linn.; B. P. ii. 1052. *Ananas sativus* H. S. 614.

v. *Ananas*, from the American name. Pine apple.

Sparingly cultivated about Calcutta; introduced to Asia from the West Indies.

CI.—HÆMODORACEÆ.

555. Sanseviera Thunb.

Sanseviera Roxburghiana Schult. f.; H. S. 556; B. P. ii. 1054.

v. *Murva, murba*. Bowstring Hemp.

Cultivated and sometimes as if wild in village-shrubberies: reported by Voigt from Serampore but certainly not wild in our area; it is indeed doubtful whether the species is really indigenous in India

at all; if so, it is the only species of the genus that seems to be so; the other species are African.

Sanseviera trifasciata Hort.; B. P. ii. 1054.

Cultivated, but also sometimes in village-shrubberies; probably native of *West* Africa, but appears to have reached India from America where it is sometimes grown as *S. guineensis*, the West African Bowstring Hemp which is not naturalized and is hardly known even in cultivation, in India.

CII.—IRIDEÆ.

556. Cipura Aubl.

Cipura paludosa Aubl.; H. S. 601; B. P. ii. 1055.

Naturalized in thickets near Calcutta among grass; native of America.

557. Belamcanda Adans.

Belamcanda chinensis Leman; B. P. ii. 1056. *Pardanthus chinensis* H. S. 605.

v. *Dasbahu, dasbachandi.*

In gardens, everywhere; native of China.

CIII.—AMARYLLIDACEÆ.

558. Agave Linn.

Agave VeraCruz Mill. *A. cantula* B. P. ii. 1057.

v. *Kantala, bilati ananas.*

A hedge near villages; native of America.

Other species of *Agave* are occasionally grown as hedges.

559. Curculigo Gærtn.

* **Curculigo orchioides** Gærtn.; H. S. 580; B. P. ii. 1059.

v. *Tal muli, tal lura.*

Grassy places west of the river Hughli.

560. Zephyranthes Herb.

Zephyranthes tubispatha Herb.; H. S. 582; B. P. ii. 1060.

In gardens, but also sometimes appearing spontaneously in grassy places; native of Peru.

561. Crinum Linn.

* **Crinum asiaticum** Linn.; H. S. 588; B. P. ii. 1061.

v. *Bara kanur.*

Sundribuns, wild, plentiful; often also in gardens in our area.

* **Crinum defixum** Ker; H. S. 590; B. P. ii. 1061.
v. *Sukh darshan.*
Banks of ponds and ditches, common.

* **Crinum pratense** Herb.; H. S. 580; B. P. ii. 1061.
Wet places, rare.

Crinum latifolium Linn.; B. P. ii. 1061. *C. ornatum* VAR. *latifolium* H. S. 591.
In gardens, generally; wild in Orissa.

VAR. **zeylanica** B. P. ii. 1061. *C. ornatum* VAR *zeylanicum* H. S. 591.
In gardens; wild in Orissa.

CIV.—DIOSCOREACEÆ.

562. Dioscorea Linn.

* **Dioscorea pentaphylla** Linn.; H. S. 653; B. P. ii. 1066.
v. *Kanta alu.*
Hedges and thickets, general.

* **Dioscorea bulbifera** Linn.; B. P. ii. 1066. *D. crispata* H. S. 652.
v. *Rat alu.*
Hedges and thickets, general.

Dioscorea fasciculata Roxb.; H. S. 652; B P. ii. 1066.
v. *Susni alu*
Cultivated only.

VAR. **spinosa** B. P. ii. 1066. *D. aculeata* H. S. 652.
v. *Mou alu.*
Thickets and village-shrubberies, general.

* **Dioscorea anguina** Roxb.; H. S. 652; B. P. ii. 1066.
v. *Kukur alu.*
Hedges and thickets, rare.

* **Dioscorea glabra** Roxb.; H. S. 653. *D. nummularia* B. P. ii. 1067.
v. *Shora alu.*
Hedges, thickets and village-shrubberies, general.

Dioscorea alata Linn.; H. S. 652; B. P. ii. 1067.
v. *Khám, kham alu.*
Generally cultivated.

VAR. **globosa** B. P. ii. 1067. *D. globosa* H. S. 652.
v. *Chupri alu.*
Generally cultivated.

VAR. **rubella** B. P. ii. 1067. *D. rubella* H. S. 652.
v. *Guraniya alu.*
Generally cultivated.

VAR. **purpurea** B. P. ii. 1067. *D. purpurea* H. S. 652.
v. *Rakto guraniya alu, lal guraniya.*
Generally cultivated.

CV.—LILIACEÆ.

563. Asparagus Linn.

* **Asparagus racemosus** Willd.; H. S. 674, B. P. ii. 1070.
v. *Sata muli.*
Hedges and thickets, occasional.

564. Smilax Linn.

* **Smilax prolifera** Roxb.; H. S. 648; B. P. ii. 1071.
v. *Kumarika.*
Hedges and thickets, general.

Smilax macrophylla Roxb.; B. P. ii. 1071. *S. ovalifolia* H. S. 648.
v. *Kumarika.*
Reported by Voigt from Serampore, a quite probable record but one that needs confirmation; the species is common in West Bengal.

565. Gloriosa Linn.

* **Gloriosa superba** Linn.; B. P. ii. 1073. *Methonica superba* H. S. 655.
v. *Ulat chandal.*
Hedges, generally.

566. Polianthes Linn.

Polianthes tuberosa Linn.; H. S. 656.
v. *Rajani gandha.* The Tuberose.
In native gardens, general; native of S. America.

567. Allium Linn.

Allium ascalonicum Linn.; H. S. 668; B. P. ii. 1075.
v. *Gandhan.* The Shalot.
In gardens everywhere, cultivated; native of the Orient.

Allium Cepa Linn.; H. S. 668; B. P. ii. 1075.
v. *Piyaj.* The Onion.
Cultivated generally; native of the Oriental and Mediterranean regions.

Allium tuberosum Roxb.; H. S. 669; B. P. ii. 1076.

v. *Ranga gandhina.* Indian Leek.

Recorded by Roxburgh as cultivated about Calcutta, but unknown to Voigt and not met with in our area as a crop by the writer: the species has, however, been raised from seeds received from Behar and the resulting plants compared and found to agree exactly with Roxburgh's drawing. It is just possible that it may be met with in gardens in the western part of Hughli district.

Allium ampeloprasum Linn.; H. S. 668; B. P. ii. 1076. *A. Porrum* H. S. 668.

v. *Paru, gandhina.* The Leek.

In gardens, generally; native of the Mediterranean and Oriental regions.

Allium sativum Linn.; H. S. 667; B. P. ii. 1076.

v. *Lasun, rashun.* Garlic.

Cultivated generally, native of the Mediterranean region.

568. Asphodelus Linn.

* **Asphodelus tenuifolius** Cav.; B. P. ii. 1076. *A. clavatus* H. S. 670.

In fields in the cold weather, but probably always a casual and introduced with seed sent from western provinces, where it is common.

569. Hemerocallis Linn.

Hemerocallis fulva Linn; H. S. 670; B. P. ii. 1078.

v. *Gul nargis.*

In gardens, generally; native of China.

CVI.—PONTEDERIACEÆ.

570. Monochoria Presl.

* **Monochoria hastæfolia** Presl; B. P. ii. 1079. *Pontederia hastata* H. S 645.

v. *Nukha.*

In ditches and rice-fields, general.

Monochoria vaginalis Presl; B. P. ii. 1079. *Pontederia vaginalis* H. S. 645.

v. *Nukha.*

Reported by Voigt from Serampore, and may quite possibly occur, because the species is plentiful in the Gangetic Plain to the north and also to the east of our districts; the record, however, needs confirmation.

VAR. * **plantaginea** Solms-Laubach; B. P. ii. 1079. *Pontederia plantaginea* H. S. 645.

v. *Nukha.*

Ditches, ponds and rice-fields, everywhere.

CVII.—XYRIDEÆ.

571. Xyris.

* **Xyris pauciflora** Willd.; B. P. ii. 1080, *X. indica* H. S. 731, possibly.

v. *Dabi-duba.*

In wet places, about Serampore, Chandernagore and Jahanabad not seen from east of the Hughli in our area.

The species in our districts that alone is represented in the Calcutta Herbarium from our region is *X. pauciflora.* Voigt, however, gives *X. indica* as occurring at Serampore and notes *X. pauciflora* as a species that might be, but that up to 1845 had not yet been, introduced either to the Botanic Garden at Shibpur or to Dr. Carey's Garden at Serampore. From this it seems clear that only one species was present in our area in Voigt's time, and it is therefore possible that the specific names used by Voigt were misplaced. At the same time the occurrence of *X. indica* is not at all impossible since it occurs in Northern Bengal as well as in Orissa.

CVIII.—COMMELINACEÆ.

572. Commelina Linn.

* **Commelina nudiflora** Linn.; B. P. ii. 1082. *C. cæspitosa* H. S. 677.

Goghat, western parts of Hughli district; also reported by Voigt from Serampore.

* **Commelina salicifolia** Roxb.; H. S. 675; B. P. ii. 1082.

v. *Pani kanchira.*

Fields and damp waste places, general.

* **Commelina Hasskarlii** Clarke; B. P. ii. 1082.

v. *Kanchira.*

Shady places, general.

* **Commelina bengalensis** Linn.; H. S. 676; B. P. ii. 1082.

v. *Kanchira.*

Shady places, everywhere.

* **Commelina attenuata** Kœnig; B. P. ii. 1083.

Goghat, Western Hughli district.

* **Commelina obliqua** Ham.; B. P. ii. 1083. *C. communis* H. S. 677.
v. *Juta kanchira.*
Shady places, general.

* **Commelina appendiculata** Clarke, B P. ii. 1083.
Shady places, east of river Hughli, rare.

* **Commelina suffruticosa** Bl; B. P. ii. 1083.
Waste places, rare.

573. Aneilema R. Br.

* **Aneilema spiratum** R. Br; B. P ii. 1084. *A. nanum* H. S. 677.
In fields and waste places, everywhere.

* **Aneilema nudiflorum** R. Br., H. S. 677; B. P. ii. 1084.
v. *Kanduli.*
Waste places, general.

* **Aneilema vaginatum** R. Br., H. S. 677; B. P. ii. 1084.
Wet places, general.

574. Tradescantia Linn.

Tradescantia discolor L'Herit., H. S. 678.
In gardens and also as an escape.

575. Cyanotis Don.

Cyanotis cristata Schult. f.; H. S. 678, B. P. ii. 1085.
Reported by Voigt from Serampore, the record requires verification. The species is common in Chota Nagpur.

* **Cyanotis axillaris** Rœm.; and Schult.; H. S. 678; B. P. ii. 1085.
v. *Baghanula.*
Fields and roadsides, general.

CIX.—FLAGELLARIEÆ.

576. Flagellaria Linn.

* **Flagellaria indica** Linn.; H. S. 681; B. P. ii. 1087.
v. *Ban chanda.*
Sundribuns, common; also reported by Voigt from Serampore, but probably not there truly wild.

CX.—JUNCACEÆ.

577. Juncus Linn.

* **Juncus prismatocarpus** R. Br.; B. P. ii. 1088.
Goghat, Western Hughli district, in wet places.

CXI.—PALMEÆ.

578. Corypha Linn.

Corypha umbraculifera Linn., H. S. 640; B. P. ii. 1090 in part.

v. *Tali.*

In gardens and on lawns; introduced from Ceylon, doubtfully wild there and in Travancore.

Corypha Talliera Roxb., H. S. 641. *C. umbraculifera* B. P. ii. 1090. in part.

v. *Tura.*

In gardens and on lawns; supposed to be wild in Bengal.

Corypha elata Roxb.; H. S. 641; B. P. ii. 1090.

v. *Bajur.*

In gardens and on lawns; supposed to be wild in Bengal.

579. Borassus Linn.

Borassus flabellifer Linn.; B. P. ii; 1092. *B. flabelliformis* H. S. 640.

v. *Tal gachh, tari.* The Palmyra tree.

In village-shrubberies, as if wild, everywhere; probably not, however, a native of India certainly not indigenous in our area.

580. Nipa Wurmb.

*** Nipa fruticans** Wurmb.; H S. 684; B. P. ii 1094.

v. *Golpatta, gabua, gulga*

Sundribuns.

581. Cocos Linn.

Cocos nucifera Linn.; H. S. 643; B. P. ii. 1095.

v. *Narikel.*

Planted generally; native of Polynesian coasts.

582. Phœnix Linn.

Phœnix sylvestris Roxb.; H. S. 642; B. P. ii. 1096.

v. *Khajur.*

Planted generally, sometimes sub-spontaneous; native of the Punjab.

*** Phœnix paludosa** Roxb.; H. S. 643; B. P. ii. 1096.

v. *Hital.*

Sundribuns.

583. **Areca** Linn.

Areca Catechu Linn.; H. S 637, B. P. ii. 1097.
v. *Gua, supári.* Betel-nut Palm.
Cultivated generally, native of S. E. Asia

584. **Calamus** Linn.

* **Calamus viminalis** Willd. VAR **fasciculata** B. P ii. 1099. *C. fasciculatus* H. S. 639.
v. *Bara bet.*
Village-shrubberies, general.

* **Calamus tenuis** Roxb., H. S. 639; B. P ii. 1099. *C. Rotang* H. S. 639, not of Linn.
v *Sanchi bet*
Sundribuns.

CXII.—PANDANACEÆ.

585. **Pandanus** Linn. f.

Pandanus fœtidus Roxb, H. S. 683, B P ii. 1101.
v. *Keiya kanta, kotki kanta*
In hedges, planted, generally, native of India.

* **Pandanus fascicularis** Lamk., B P ii. 1101. *P. odoratissimus* H. S. 682.
v. *Keiya, keori*
Sundribuns, common; elsewhere planted.

CXIII.—TYPHACEÆ.

586. **Typha** Linn.

* **Typha elephantina** Roxb., H. S. 693, B. P. ii. 1102
v. *Hogla.*
Margins of ponds and streams, very rare.

* **Typha angustata** Chamb. & Bory; B. P. ii. 1102 *T. angustifolia* H. S. 693.
v. *Ram hogla.*
Margins of ponds and streams, common.

CXIV.—AROIDEÆ.

587. **Pistia** Linn.

* **Pistia Stratiotes** Linn.; H. S 684; B. P. ii. 1105.
v. *Takapana.*
In ponds, everywhere.

588. Cryptocoryne Fisch.

* **Cryptocoryne ciliata** Fisch., H S. 685, B P. iii 1105.
v. *Keralı.*
In muddy creeks and ditches, general.

* **Cryptocoryne spiralis** Fisch.; H. S 685; B. P. ii. 1106
Edges of ponds, general.

589. Typhonium Schott.

* **Typhonium trilobatum** Schott; B. P. ii. 1107. *T. orixense* H. S. 686.
v. *Ghat kachu, ghekul.*
In thickets among grass; doubtfully native.

* **Typhonium Schottii** Prain.; B. P ii 1108.
In grassy glades, with the preceding of which it is possibly a variety.

Typhonium inopinatum Prain; B. P. ii. 1108.
In garden ground and among grass in open glades, introduced but common; native of Indo-China.

Typhonium Roxburghii Schott; B. P. ii. 1108. *T. trilobatum* H. S. 686.
In grassy glades, introduced and very rare; native of Malaya.

* **Typhonium cuspidatum** Bl.; B. P. ii. 1108. *T. flagelliforme* H. S. 685. *Arum cuspidatum* H. S. 690.
In grassy glades, general.
Voigt also records, but doubtfully, as to the identification, *T. divaricatum* from Serampore. The record is not improbable but needs confirmation and the species intended may be one of the foregoing.

590. Amorphophallus Bl.

* **Amorphophallus campanulatus** Bl.; H. S. 686; B. P. ii. 1109.
v. *Ol.*
Cultivated everywhere and also wild in all village thickets.

* **Amorphophallus bulbifer** Bl.; B. P. ii. 1110. *Pythonium bulbiferus* H. S. 686.
v. *Amla-bela.*
In village-shrubberies, general.

591. Plesmonium Schott.

* **Plesmonium margaritiferum** Schott; B. P. ii. 1110. *Arum margaritiferum* H. S. 690.
Village shrubberies, general.

592. Alocasia Schott.

Alocasia cucullata Schott; B. P. ii. 1111. *Colocasia cucullata* H. S. 687.

v. *Bishman.*

Reported from Serampore by Voigt, but almost certainly only a cultivated plant in our area; native of Indo-China.

Alocasia indica Schott; B. P. ii. 1111. *Colocasia indica* H. S. 687.

v. *Mán kachu, mán giri.*

Cultivated about villages, everywhere; native of India.

Alocasia macrorrhiza Schott; B. P. ii. 1111. *Colocasia odora* H. S. 687.

Cultivated about villages, general; native of Indo-China.

* **Alocasia fornicata** Schott; B. P. ii. 1111. *Colocasia fornicata* H. S. 687.

v. *Salo kachu.*

Village-shrubberies and thickets, general.

593. Colocasia Linn.

* **Colocasia nymphaeifolia** Kunth; H. S. 687; B. P. ii. 1112.

v. *Sar kachu.*

Grassy glades and village shrubberies, general.

* **Colocasia antiquorum** Schott; H. S. 686; B. P. ii. 1112.

v. *Kachu.*

Everywhere cultivated and also everywhere wild in grassy glades and village-shrubberies.

594. Scindapsus Schott.

* **Scindapsus officinalis** Schott; H. S. 688; B. P. ii. 1114.

v. *Gaj pipal.*

Epiphytic in orchards and village-shrubberies; sometimes cultivated.

595. Lasia Lour.

* **Lasia heterophylla** Schott; H. S. 689; B. P. ii. 1116. *L. Loureirii* H. S. 689.

v. *Kanta kachu, kanta mán.*

Swampy places, general.

CXV.—LEMNACEÆ.

596. Lemna Linn.

* **Lemna paucicostata** Hegelm.; B. P. ii. 1117.

In stagnant water, floating, general.

* **Lemna trisulca** Linn.; B. P. ii. 1117. *L. cruciata* H. S. 692.
In stagnant water, forming tangled masses below the surface, rare.

* **Lemna polyrhiza** Linn.; B. P. ii. 1117. *L. orbiculata* H. S. 692.
In stagnant water, floating; everywhere.

* **Lemna oligorhiza** Kurz.; B. P. ii. 1117.
In stagnant water, floating; rare.

597. Wolffia Hook.

* **Wolffia arrhiza** Wimm.; B. P. ii. 1117. *Grantia globosa* H. S. 692.
In stagnant water, floating, general.

* **Wolffia microscopica** Kurz; B. P. ii. 1117. *Grantia microscopica* H. S. 692.
In stagnant water, floating.

CXVI.—ALISMACEÆ.

598. Alisma Linn.

* **Alisma reniforme** Don, B. P. ii. 1119. *A. intermedium* H. S. 680.
In pools and marshes, general.

A. intermedium is doubtfully referred by Sir J. D. Hooker in the *Flora of British India* to *A. Plantago*, the chief arguments against the suggestion are (1) that Griffith was very unlikely to have made any mistake as to the identity of *A. Plantago*; and (2) that *A. Plantago* has not so far been met with in the Gangetic delta.

* **Alisma oligococcum** F. Muell.; B. P. ii. 1119.
In pools and marshes, very rare.

599. Limnophyton Miq.

* **Limnophyton obtusifolium** Miq., B. P. ii. 1119. *Sagittaria obtusifolia* H. S. 680.
v. *Bara kat.*
In pools and marshes, general.

600. Sagittaria Linn.

* **Sagittaria sagittifolia** Linn; H. S. 680; B. P. ii. 1120.
v. *Muya-muya, chota kat.*
Sides of ponds and ditches, general.

* **Sagittaria guayanensis** H. B. & K.; B. P. ii. 1120. *S. cordifolia* H. S. 680.
In pools and marshes, everywhere.

601. Butomopsis Kunth.

* **Butomopsis lanceolata** Kunth; B. P. ii. 1120. *Butomus lanceolatus* H. S. 679.
Wet places and rice-fields, west of river Hughli, rare.

CXVII.—NAIADACEÆ.

602. Aponogeton Thunb.

* **Aponogeton monostachyum** Linn. f.; B. P. ii. 1122. *Spathium chinense* H. S. 694.
v. *Ghachu.*
In standing water, general.

* **Aponogeton echinatum** Roxb.; B. P. ii. 1122.
In standing water, west of river Hughli, rare.

* **Aponogeton crispum** Thunb.; B. P. ii. 1122. *Spathium undulatum* H. S. 694.
In standing water, general.

603. Potamogeton Linn.

* **Potamogeton indicus** Roxb.; H. S. 694; B. P. ii. 1123.
In ponds and ditches, everywhere.

* **Potamogeton crispus** Linn; B. P. ii. 1123. *P. tuberosus* H. S. 694.
In ponds and ditches, everywhere.

* **Potamogeton pectinatus** Linn.; B. P. ii. 1123.
Salt-lakes near Calcutta.

604. Ruppia Linn.

* **Ruppia rostellata** Koch; B. P. ii. 1124.
Salt-lakes near Calcutta; Sundribuns.

605. Najas Linn.

* **Najas indica** Cham.; H. S. 694; B. P. ii. 1125.
In deep standing water, everywhere.

Najas minor All.; B. P. ii. 1125. *N. dichotoma* H. S. 694. *N. heteromorpha* H. S. 694.
In deep standing water, everywhere.

* **Najas foveolata** A. Br.; B. P. ii. 1125.
In deep standing water, general.

* **Najas graminea** Del.; B. P. ii. 1125. *N. seminuda* H. S. 694.
In deep standing water, everywhere.

Two other species, *Najas lacerata* Rendle and *Najas rigida* Griff. should be kept in view and looked for. The former is apparently plentiful in deep pools of standing water in the neighbouring district of Jessore. The latter was collected by Griffith at Serampore; it is a doubtful species, with fleshy rigid leaves, of which the original examples are not now to be found; if it be really a *Najas* it differs from all the known species in having alternate leaves.

CXVIII.—ERIOCAULEÆ.

606. Eriocaulon.

* **Eriocaulon Capillus-Naiadis** Hook. f.; B. P. ii 1127. *E. setaceum.* H. S 730 in part.
Serampore, (*Griffith, Voigt*), in deep standing water.

* **Eriocaulon truncatum** Ham.; B. P. ii. 1127. *E. sexangulare* H. S. 730.
Wet fields, west of the Hughli river.

* **Eriocaulon Sieboldianum** Sieb. & Zucc.; B. P. ii. 1127. *E. melaleucum* H. S. 731.
Wet fields and marshy places, general.

* **Eriocaulon luzulifolium** Mart.; B. P. ii. 1127.
Wet fields and marshy places, west of the Hughli river.

* **Eriocaulon quinqueangulare** Linn.; H. S. 730; B P. ii. 1127.
v. *Guri.*
Wet fields and marshy places, everywhere.

* **Eriocaulon trilobum** Ham.; B. P. ii. 1127. *E. argenteum* H. S. 730.
Wet fields and marshy places, west of the river Hughli.

Voigt states (H. S. 731) that in addition to the five which he enumerates, seven other species were collected in the neighbourhood of Serampore by the native gardeners attached to the garden of which he had charge. The species of this genus therefore deserve to be carefully collected and examined. One of Voigt's seven doubtless was *E. luzulifolium;* what the others may have been it is impossible to conjecture.

CXIX.—CYPERACEÆ.

607. Scleria Berg.

* **Scleria biflora** Roxb.; B. P. ii. 1133. *S. tessellata* H. S. 728.
Waste places, general.

* **Scleria lithosperma** Sw.; H. S. 728; B. P. ii. 1132.
Waste places, west of the river Hughli.

608. Kyllinga Rottb.

* **Kyllinga monocephala** Rottb.; H. S. 724; B. P. (*sphalmate* microcephala) ii. 1135.
 v. *Swet gothubi.*
 Waste places and fields, everywhere.
* **Kyllinga brevifolia** Rottb; B. P. ii. 1135. *Cyperus dubius* H. S. 723 partly.
 Waste places, everywhere.
* **Kyllinga triceps** Rottb; H. S. 724; B. P. ii. 1135.
 Waste places, general.

609. Pycreus Beauv.

* **Pycreus sanguinolentus** Nees.; B. P. ii. 1137. *Cyperus sanguinolentus* H. S. 721.
 Wet places, general.
* **Pycreus nitens** Nees; B. P. ii. 1137. *Cyperus pulvinatus* H. S. 721.
 Wet places, everywhere.
* **Pycreus polystachyus** Beauv; B. P. ii. 1137.
 Wet places south of Calcutta; Sundribuns.

610. Juncellus Clarke.

* **Juncellus inundatus** Clarke; B. P. ii. 1138. *Cyperus inundatus* H. S. 721.
 v. *Pati.*
 Wet places chiefly east of river Hughli; Sundribuns.
* **Juncellus pygmæus** Clarke; B. P. ii. 1138. *Cyperus pygmæus* H. S. 721 partly.
 v. *Jalmúti.*
 Damp places, everywhere.

611. Cyperus Linn.

* **Cyperus Cephalotes** Vahl; B. P. ii. 1141. *Anosporum monocephalum* H. S. 725.
 v. *Gothubi, nirtroba.*
 Floating on tanks, rare in our area.
* **Cyperus cuspidatus** H. B. K.; B. P. ii. 1141. *C. angustifolius* H. S. 722.
 In damp waste places, general.

Cyperus castaneus Willd.; H. S. 722.

Reported by Voigt from Serampore; this record needs confirmation and is not very probable; the species is widespread in India, but is always rare and there are no specimens from Bengal in the Calcutta Herbarium. It is possible that the plant intended by Voigt is not true *C. castaneus* but the form of *C. cuspidatus* with chestnut-coloured fruits.

* **Cyperus flavidus** Retz; B. P. ii. 1142.
A weed of rice-fields, general.

* **Cyperus difformis** Linn.; H. S. 723; B. P. ii. 1142.
v. *Behua.*
A weed of rice-fields, general.

* **Cyperus Haspan** Linn.; B. P. ii. 1142.
A weed of rice-fields in the western parts of the Hughli district.

* **Cyperus niveus** Retz; H. S. 722; B. P. ii. 1142.
A weed of fields, west of the Hughli river.

* **Cyperus compressus** Linn.; H. S. 721; B. P. ii. 1143.
v. *Chuncha*
A field weed, chiefly west of the river Hughli.

* **Cyperus aristatus** Rottb.; H. S. 722; B. P. ii. 1143.
A weed of fields and paths, general.

* **Cyperus Iria** Linn.; H. S. 723; B. P. ii. 1143.
v. *Bara chuncha.*
A weed of rice-fields, general.

* **Cyperus pilosus** Vahl; B. P. ii. 1143.
A common weed.

* **Cyperus procerus** Rottb.; B. P. ii. 1143.
A sedge on banks of nalas and rivers, general.

* **Cyperus distans** Linn. f.; H. S. 723; B. P. ii. 1143.
v. *Pani malanga.*
A sedge on banks of ditches and rivers, chiefly east by the river Hughli.

* **Cyperus nutans** Vahl; B. P. ii. 1144.
A sedge of wet places, general.

* **Cyperus malaccen** Lamk; B. P. ii. 1144. *Papyrus dehiscens* H. S. 724.
v. *Chumati pati.*
A tall sedge of river banks, everywhere.

* **Cyperus scariosus** R. Br.; B. P. ii. 1144. *C. pertenuis* H. S. 722.
v. *Nagar motha*
A slender sedge of the Sundribuns, also reported by Voigt from Serampore.

* **Cyperus articulatus** Linn.; B P. 1144. *C. articulatus* VAR. *niloticus* H. S. 722.
A sedge of river banks, general.

* **Cyperus tegetiformis** Roxb.; B P. ii. 1144. *Papyrus tegetiformis* H S. 724.
v. *Kuchkuchiya, gola methi, halaiza.*
A sedge of marshes and river banks, general. This species is sometimes termed *gola methi*, but that name is said by Voigt to be applicable only to the following.

* **Cyperus corymbosus** Rottb.; B P. ii. 1144 *C. seminudus* H. S. 722.
v. *Gola methi.*
A sedge of marshes and river banks, general.

Cyperus tegetum Roxb.; B. P. ii. 1144. *Papyrus Pangorei* H. S. 723.
v. *Madar ketai.*
Reported from Serampore by Voigt, but this record needs confirmation, the species is common both west and north of our area.

* **Cyperus rotundus** Linn.; B P. ii. 1145. *C hexastachyus* VAR. *communis* H. S 722.
v. *Motha.*
A weed of fields and grassy places, everywhere.

* **Cyperus tuberosus** Rottb.; B. P. ii. 1145 *C hexastachyus* VAR. *pendulus* H. S. 722.
A weed of fields and grassy places, general.

* **Cyperus radiatus** Vahl; B. P. ii. 1145. *C. verticillatus* H. S 723.
v. *Burethi.*
River banks and marshes, everywhere.

* **Cyperus exaltatus** Retz; H. S. 722; B. P. ii. 1145.
River banks and marshes, general.

Cyperus digitatus Roxb.; B. P. ii. 1145. *C. racemosus* H. S. 723. *C. venustus* H. S. 723.
Reported, in two states, from Serampore by Voigt, but the records require confirmation; the species is common in Eastern Bengal.

Cyperus platyphyllus R. & S. *C. Roxburghii* H. S. 723.
v. *Gol melanga.*

Reported, with a vernacular name, from Serampore by Voigt, but the record is quite doubtful; the species is apparently confined to the Deccan and Ceylon.

612. Mariscus Vahl.

* **Mariscus Dregeanus** Kunth; B. P. ii. 1146 *Cyperus dubius* H. S. 723 partly.
About Calcutta (*Wallich*) and Serampore (*Voigt*), but very rare in our area, and not impossibly a casual.

* **Mariscus squarrosus** Clarke; B. P. ii. 1146.
In wet places, general

* **Mariscus paniceus** Vahl; B. P. ii. 1147.
In wet places, occasional.

* **Mariscus Sieberianus** Nees, B. P. ii. 1247. *M. cyperinus* H. S. 724.
v. *Bara gothubi*.
In wet places, everywhere.

* **Mariscus albescens** Gaud.; B. P. ii. 1147.
v. *Halaiya*.
Western Sundribuns, on muddy river banks.

* **Mariscus microcephalus** Presl; B. P. ii. 1147. *M. dilatus* H. S. 724.
In wet places, general.

* **Mariscus ferax** Clarke; B P. ii. 1147.
In wet places, east of Calcutta, rare.

613. Courtoisia Nees.

* **Courtoisia cyperoides** Nees; H. S. 724; B. P. ii. 1147.
Fields in Goghat, Western Hughli district.

614. Eleocharis R. Br.

* **Eleocharis plantaginea** R. Br; B. P. ii. 1148. *Limnochloa plantaginea* H. S. 727. *L. tumida* H. S. 727.
v. *Chenchka*.
In shallow ponds, general.

* **Eleocharis fistulosa** Schult.; B. P. ii. 1148. *Limnochloa acutangula* H. S. 728.
In shallow ponds, general.

* **Eleocharis spiralis** R. Br.; B. P. ii. 1149.
In standing water, Western Sundribuns.

* **Eleocharis capitata** R. Br.; B. P. ii. 1149. *Eleogenus capitatus* H. S. 727.
In shallow ponds, general.

* **Eleocharis palustris** R. Br.; B. P. ii. 1149.
In shallow ponds, occasional.

615. Fimbristylis Vahl.

* **Fimbristylis monostachya** Hassk.; B. P. ii. 1152. *Abildgaardia Rottbolliana* H. S. 725.
v. *Marmari.*
In damp ground, general.

* **Fimbristylis acuminata** Vahl; B. P. ii. 1153.
In damp ground, occasional.

* **Fimbristylis polytrichoides** Vahl; B. P. ii. 1153.
v. *Talnaru.*
Wet fields mostly south of Calcutta and in the Northern Sundribun clearings.
VAR.* **halophila** Kurz; B. P. ii. 1153.
Wet open spaces in the Sundribuns, common.

* **Fimbristylis schœnoides** Vahl; H. S. 725; B. P. ii. 1153.
v. *Kesari malanga.*
Wet places, general.

* **Fimbristylis subbispicata** Nees & Meyer; B. P. ii. 1153.
Sundribun sea-face, in sand.

* **Fimbristylis squarrosa** Vahl; B. P. ii 1153.
In damp places, occasional.

* **Fimbristylis dichotoma** Vahl; B. P. ii. 1153. *F. pallescens* H. S. 725.
In wet fields, everywhere.

* **Fimbristylis diphylla** Vahl, B. P. ii. 1153. *F. Roycniana* H. S, 725.
v. *Bara nirbishi.*
In fields and waste places, everywhere.

* **Fimbristylis aestivalis** Vahl; H. S. 725; B. P. ii. 1155.
In damp fields, everywhere.

* **Fimbristylis ferruginea** Vahl; H. S. 725; B. P. ii. 1154.
In fields and waste places, everywhere.

* **Fimbristylis argentea** Vahl; B. P. ii. 1154.
In fields, Goghat, Western Hughli district.

* **Fimbristylis tenera** Roem. & Schult.; B. P. ii. 1154. *Trichelostylis tenella* H. S 725.
In damp places, general.

* **Fimbristylis globulosa** Kunth; B. P. ii. 1154.
In damp places, occasional.

* **Fimbristylis quinqueangularis** Kunth; B. P. ii. 1154 *Trichelostylis quinqueangularis* H. S. 726.
In wet helds, general.

* **Fimbristylis miliacea** Vahl; B. P. ii. 1155. *Trichelostylis miliacea* H. S. 726. *T. tetragona* H. S. 726.
v *Bara javani.*
In helds and waste places, everywhere.

* **Fimbristylis complanata** Link.; B. P. ii. 1155. *Trichelostylis complanata* H. S 726.
v. *Karatiya javani.*
In damp places, everywhere.

616. Echinolytrum Desv.

* **Echinolytrum dipsaceum** Desv.; B. P. ii. 1155.
In damp soil, general.

617. Bulbostylis Kunth.

* **Bulbostylis barbata** Kunth.; B. P. ii. 1156.
In damp soil, general.

618. Lipocarpha R. Br.

* **Lipocarpha argentea** R. Br.; B. P. ii. 1157.
In damp grassy places, occasional.

619. Fuirena Rottb.

* **Fuirena glomerata** Lamk; B. P. ii. 1158.
v. *Band kola.*
In grassy places, occasional.

620. Scirpus Linn.

* **Scirpus Michelianus** Linn.; B. P. ii. 1160. *Cyperus pygmæus* H. S. 721 partly.
v. *Chhota gothubi.*
In wet places, general.

In Voigt's *Hortus suburbanus* there is evidently a confusion under *Cyperus pygmæus* of this species and *Juncellus pygmæus*, while under *Cyperus dubius* which, by his citation as identical of the plants so named by Rottboell and Roxburgh respectively, includes *Kyllinga brevifolia* and *Mariscus Dregeanus* he gives, as the vernacular equivalent, the name usually associated with the present plant.

* **Scirpus squarrosus** Linn.; B. P. ii. 1160. *Isolepis squarrosa* H. S. 726.

v. *Guri, chancha marmari.*

In wet places, general.

* **Scirpus grossus** Linn. f; B. P. ii. 1160. *Hymenochaete grossa* H. S. 727.

v. *Bara keshuria.*

In wet places, west of the river Hughli.

VAR.* **Kysoor** Clarke; B. P. ii. 1160. *Scirpus Kysoor* H. S. 727.

v. *Késur.*

In wet places, general.

*‖**Scirpus supinus** Linn.; B. P. ii. 1160. *Isolepis supina* H. S. 726.

In wet places, general.

Scirpus Isolepis Bœck.; B. P. ii. 1160. *Isolepis setacea* H. S. 726, not of R. Br.

Reported by Voigt from Serampore, the record is not improbable as the species has been collected in Lower Bengal by Griffith and is occasionally met with in Behar and Chota Nagpur.

* **Scirpus erectus** Poir.; B. P. ii. 1160. *S. junciformis* H. S. 727.

In wet places, general.

* **Scirpus articulatus** Linn.; B. P. ii. 1160. *Isolepis prolongata* H. S. 727. *I. articulata* H. S. 727. *I. incurvata* H. S. 727.

v. *Pappati chickha.*

In wet places, everywhere.

* **Scirpus mucronatus** Linn.; B. P. ii. 1161.

In wet places, general.

* **Scirpus maritimus** Linn. VAR. **affinis** Roth; B. P. ii. 1161.

Wet places, east of the river Hughli.

* **Scirpus triqueter** Linn. VAR **segregata** Clarke; B. P. ii. 1161.

North-Western Sundribuns in swampy places.

* **Scirpus littoralis** Schrad.; B. P. ii. 1161.

Western Sundribuns.

CXX.—GRAMINEÆ.

621. Pennisetum Pers.

Pennisetum typhoideum Rich.; B. P. ii. 1169. *Penicillaria spicata* H. S. 703.

v. *Bajra.*

Cultivated. The Kambu millet.

* **Pennisetum setosum** Rich.; B. P. ii. 1169. *P. holcoides* H. S. 703.

v. *Shuti ghas.*

Collected at Serampore by Griffith, but not cited by Voigt as occurring there; possibly only a casual in our area as it has not been obtained again; it is common to the west of our districts.

Pennisetum borbonicum Kunth.; B. P. ii. 1169.

Collected about Serampore by Carey and about Shibpur by Kurz on the edges of fields, but probably an introduced grass only; native of Réunion.

622. Setaria Beauv.

Setaria italica Beauv.; B. P. ii. 1170. *Panicum italicum* H. S. 702. *P. macrochaetum* H. S. 702.

v. *Kangni, kangu.*

Cultivated. The Italian millet.

* **Setaria glauca** Beauv.; B. P. ii. 1170. *Panicum helvolum* H. S. 702.

v. *Pingi natchi.*

In newly made pastures and dry fields, general.

* **Setaria intermedia** R. & S.; B. P. ii. 1170.

v. *Dora-byara.*

In grassy glades, general, but never common.

* **Setaria verticillata** Beauv.; B. P. ii. 1170. *Panicum verticillatum* H. S. 702. *P. tomentosum* H. S. 702.

v. *Dora-byara.*

In grassy glades, general.

This and the preceding species are apparently not distinguished from each other by the inhabitants of our area.

623. Chamæraphis R. Br.

* **Chamæraphis spinescens** R. Br. VAR. **Brunoniana** Hook. f.; B. P. ii. 1171.

Floating on ponds, general.

* **Chamæraphis gracilis** Hook f.; B. P. ii. 1171.
Floating on ponds, 24-Pergunnahs, south-east of Calcutta.

624. Isachne R. Br.

Isachne miliacea Roth; B. P. ii. 1172. *Panicum patens* H. S. 700.
Reported from Serampore by Voigt but the record is doubtful; the grass occurs in North Bengal.

625. Oplismenus Beauv.

* **Oplismenus compositus** Beauv.; B. P. ii. 1173. *O. lanceolatus* H. S. 702.
Grassy glades, general.

* **Oplismenus Burmanni** Beauv.; H. S. 702; B. P. ii. 1173.
Grassy glades, general.

626. Axonopus Beauv.

* **Axonopus cimicinus** Beauv.; B. P. ii. 1174. *Coridochloa cimicina* H. S. 699.
Dry grassy places, in the western parts of the Hughli district.

627. Panicum Linn.

* **Panicum flavidum** Retz; H. S. 700; B. P. ii. 1176.
Waste places, roadsides, meadows, everywhere.

* **Panicum punctatum** Burm.; B. P. ii. 1177. *P. fluitans* H. S. 700.
v. *Peti nar.*
Edges of ditches and wet places, everywhere.

* **Panicum Crus Galli** Linn.; B. P. ii. 1177. *P. Crus Corvi* H. S. 702. *P. hispidulum* H. S. 702.
v. *Bara shama.*
In waste damp places, occasional.
VAR.* **stagninum** Trin.; B. P. ii. 1177. *P. stagninum* H. S 702.
v. *Dal.*
In marshy places, general.
VAR. **frumentaceum** Trin.; B. P. ii. 1177. *Oplismenus frumentaceus* H. S. 703.
v. *Damra shama.*
Cultivated.

* **Panicum colonum** Linn.; B. P. ii. 1177. *Oplismenus colonus* H. S. 703.
v. *Shama.*
In rich pasture land, general.

* **Panicum prostratum** Lamk; B. P. ii. 1177. *P. repens* H. S. 700.
v. *Chhota jalganti.*
In cultivated land and gardens, general.

In the Flora of British India Roxburgh's *P. repens* is cited as equivalent to *P. villosum* and possibly Roxburgh included *P. villosum* and *P. prostratum* in one species. But that the *P. repens* which Roxburgh knew in the neighbourhood of Calcutta, which is also Voigt's *P. repens* and is the grass known locally as *chhota jalganti* is *P. prostratum*, and *P. prostratum* only, admits of no dispute.

Panicum muticum Forsk.; B. P. ii. 1177.
v. *Nar dal.*
Sometimes cultivated as a fodder grass about Calcutta, but now quite general and well established in a wild state in ponds and ditches; native of Africa. Evidently introduced since 1845.

* **Panicum javanicum** Poir.; B. P. ii. 1177. *P. Helopus* H. S. 701.
v. *Jalganti.*
Edges of cultivated fields, general.

* **Panicum setigerum** Retz.; H. S. 702; B. P. ii. 1178.
v. *Bara jalganti.*
In glades and opener thickets and hedges, general.

* **Panicum distachyum** Linn.; B. P. ii. 1178.
Grassy glades and borders of cultivated ground, general.

* **Panicum Kurzii** Hook. f.; B. P. ii. 1178.
Grassy glades, general.

* **Panicum Myurus** H. B. K.; B. P. ii. 1178. *P. serrulatum* H. S. 701.
v. *Damsiria.*
In ponds and marshes, chiefly west of the Hughli.

* **Panicum interruptum** Willd; H. S. 700; B. P. ii. 1178.
v. *Nardula.*
In ponds and marshes, chiefly south and east of Calcutta, but reported also from Serampore by Voigt.

* **Panicum myosuroides** R. Br.; B. P. ii. 1179. *P. curvatum* H. S. 700.
Margins of ponds and ditches, fairly general.

* **Panicum indicum** Linn.; B. P. ii, 1178.
In open grassy places, west of the river Hughli only.

Panicum miliaceum Linn.; H. S. 700; B. P. ii, 1179.
v. *Cheena.*
Very sparingly cultivated in the Hughli district.

Panicum miliare Lamk.; H. S. 700; B. P. ii. 1179.

v. *Gendula.*

Very sparingly cultivated in the western parts of the Hughli district.

* **Panicum psilopodium** Trim.; B. P. ii. 1179.

Open grassy places in the Goghat sub-division of the Hughli district.

* **Panicum trypheron** Schult.; B. P. ii. 1179. *P. Roxburghii* H. S. 01.

v. *Jupi kanka.*

In dry fields, west of the river Hughli only.

* **Panicum humile** Nees; B. P. ii. 1179.

v. *Jupi kanka.*

In dry fields, west of the river Hughli only. Appears not to be distinguished by the inhabitants from *P. trypheron*, of which it looks on casual observation much like a small form.

Panicum maximum Jacq.; B. P. ii. 1179. *P. jumentosum* H. S. 700.

Guinea Grass. Cultivated occasionally about Calcutta.

* **Panicum repens** Linn.; B. P. ii. 1179. *P. uliginosum* H. S. 700.

v. *Baranda.*

Borders of rice-fields, river banks and other wet places, everywhere.

* **Panicum proliferum** Lamk.; B. P. ii. 1179. *P. paludosum* H. S. 700.

v. *Borati, kalas nar, dalakri ghas.*

Floating on ponds and ditches, everywhere.

Panicum flavescens Sw.; B. P. ii. 1180. *P. costatum* H. S. 701.

v. *Bans pati ghas.*

In open glades about Calcutta, very plentiful. Though now one of the commonest of grasses about Calcutta this species is not a native of India; it was originally introduced from Mauritius. The name given it by the inhabitants of our districts is that used elsewhere to indicate the allied but much larger species *P. plicatum*, which does not occur in our area.

* **Panicum trigonum** Retz.; H. S. 700; B. P. ii. 1180.

About Serampore (*Voigt*) and also not uncommon about Shibpur. Though fairly frequent this grass is probably only an introduced one in our area for it has not been met with elsewhere in Bengal and has no vernacular name with us. It is common in the Deccan and occurs in Ceylon and Java.

628. Digitaria Lamk.

* **Digitaria sanguinalis** Scop. VAR. **ciliaris**; B. P. ii. 1181. *Panicum commutatum* H. S. 701.
v. *Makar-juli.*
In hedges and meadows, general
VAR.* **extensa**; B. P. ii. 1181. *Panicum ægyptiacum* H. S. 701. *P. filiforme* H. S. 701.
In hedges and meadows, general.
VAR * **pruriens**; B. P. ii. 1181. *Panicum orthum* H. S. 701.
In hedges and meadows, general.
VAR.* **debilis**; B. P. ii. 1181.
Open grassy places, west of the river Hughli.
VAR.* **Rottleri** B. P. ii. 1181.
Open grassy places, general.

* **Digitaria tenuiflora** Beauv.; B. P. ii. 1181. *Helopus longiflorus* H. S 699. *H. filiculmis* H. S 699.
v. *Kanka-juriya.*
In open grassy places, everywhere.

* **Digitaria puberula** Link. *D. Royleana* B. P. ii. 1182.
In drier grassy places, general.

* **Digitaria pedicellaris** Prain; B. P. ii. 1182. *Urochloa panicoides* H S 701.
v. *Chitri chiriya.*
Dry fields, Goghat.

629. Paspalum Linn.

* **Paspalum scrobiculatum** Linn.; B. P. ii. 1182. *P. stoloniferum* (n. 2) H. S. 699. *Helopus longifolius* H. S. 699.
v. *Myna, kodu.*
In damp places, everywhere.

Paspalum conjugatum Berg.; B. P. ii. 1182.
In shady grassy places, general. Though now a common grass about Calcutta and Shibpur, this has all the appearance of being an introduced species. It was apparently unknown to Roxburgh and to Voigt: it probably came to India from tropical America.

* **Paspalum distichum** Linn.; B. P. ii. 1183.
Sundribuns; banks of Hughli as far north as Calcutta.

630. Eriochloa H. B. K.

* **Eriochloa polystachya** H. B K.; B. P. ii. 1183. *Helopus annulatus* H. S. 699.
v. *Chiriya ghas.*
In damp places, general.

631. Oryza Linn.

Oryza sativa Linn.; H. S. 711; B. P. ii. 1184.

v. *Dhan.* Rice.

Cultivated everywhere in several forms, some without awns, others with awns of varying length: native of various parts of India.

VAR. * **fatua**; B. P. ii. 1184.

v. *Dhan.* Wild Rice.

Occasionally met with in the Sundribuns, but it is possible that the Sundribuns wild stock is only feral after escape and not truly wild. It is apparently always long-awned.

* **Oryza coarctata** Roxb.; B. P. ii. 1184.

v. *Dhani, harakata.*

Western Sundribuns, common.

632. Leersia Sw.

* **Leersia hexandra** Sw.; B. P. ii 1185. *Hygrorhiza ciliata* H. S. 710.

Floating on ponds and jhils, everywhere.

633. Hygrorhiza Nees

* **Hygrorhiza aristata** Nees; B. P. ii. 1185. *Potamochloa Retzii* H. S. 711.

v. *Jangli dal.*

Floating on ponds and jhils, general

634. Tragus Haller.

* **Tragus racemosus** Scop.; B. P. ii. 1186.

Goghat, Western Hughli, in dry fields.

635. Perotis Ait.

* **Perotis latifolia** Ait.; H. S. 710; B. P. ii. 1185.

Dry fields, west of river Hughli, occasional.

636. Zoysia Willd.

* **Zoysia pungens** Willd.; H. S. 709; B. P. ii. 1186.

Western Sundribuns, common, also reported by Voigt from Serampore. The latter record is not altogether impossible, but it is doubtful if the conditions in the neighbourhood favour the existence of the grass there now. It is particularly abundant in half-cultivated ground about Canning Town.

637. Dimeria R. Br.

Dimeria ornithopoda Trin.; B. P. ii. 1187. *Chrysopogon filiformis* H. S 704. *Andropogon Roxburghianus* H. S. 707.

Fields near Calcutta (*Roxburgh*) and Serampore (*Voigt*); the records require confirmation; the species is common to the west of our area.

638. Imperata Cyrill.

* **Imperata arundinacea** Cyrill.; B. P. ii. 1188. *I. cylindrica* H. S. 704.

v. *Ula.*

Old stiff pasture land, everywhere.

639. Saccharum Linn.

* **Saccharum spontaneum** Linn., H. S 705; B. P. ii 1188. *S. semidecumbens* H. S. 705. *S. cinaliculatum* H. S. 705.

v. *Kuasi, khuri, khakra.*

River banks, hedges, etc, general.

Saccharum arundinaceum Retz.; B P. ii. 1189. *S. procerum* H. S. 705.

v *Teng.*

Reported from Serampore by Voigt; the species is occasionally planted in our area but its record in a wild state needs confirmation; it is plentiful in North Bengal and East Bengal.

Saccharum Sara Roxb.; H. S 705. *S. arundinaceum* VAR. **ciliaris** B. P. ii. 1189.

v. *Sara, Shar.*

Occasionally cultivated in Hughli district, but not, I believe, wild in our area, though reported from Serampore by Voigt; it is common in the Upper Gangetic plain.

Saccharum officinarum Linn.; H. S. 705, B. P. ii 1189. *S. sinense* H. S. 705.

v. *Akh, kushiar, gauna.* The pale forms are known as *Poori* and *kulloa*, the red as *kajuli.*

Cultivated generally; probably native of tropical Asia.

Saccharum fuscum Roxb.; H. S. 705; B. P. ii. 1189.

v. *Khuri, pati khuri.*

Reported from Serampore by Voigt; the record needs confirmation however: the species is common in Eastern Bengal.

Voigt gives the name *Kash* as limited to the erect rigid form of *S. spontaneum* and that of *khuri* to the semi-decumbent form of that species; he further indicates that the name for *S. fuscum* is *pati*

khuri. But apparently now-a-days the name *khasi* is applied to both the forms of *S. spontaneum*, and so far as I can ascertain the name *khuri*, without any qualifying epithet, is restricted to *S. fuscum*.

640. Pollinia Trin.

* **Pollinia argentea** Trin.; B. P. ii. 1190. *Andropogon trispicatus* H. S. 707.

In new pasture land, occasional.

Pollinia conjugata. *Andropogon conjugatus* H. S. 707.

Serampore, according to Voigt.

This record is doubtful but deserves to be looked into. The grass in question, described by Roxburgh as *Andropogon conjugatus*, is stated by its author to be a native of Bengal, though no precise locality in Bengal is cited. He has left a coloured drawing of the species, but there is not now in Herb. Calcutta,—and the same is apparently true as regards Herb. Kew,—any specimen that agrees exactly with this figure which is clearly that of an species of *Pollinia*. Hackel suggests that the grass must be very closely allied to *P. fimbriata*, but it is clearly not that species as Hooker has shown, nor from the known distribution of *P. fimbriata* is it likely to be a form of it. There are examples of *P. articulata*, in Herb. Calcutta, that closely resemble in externals Roxburgh's figure of *Andropogon conjugatus*, but the awnless condition of the second glume of the sessile spikelets, as shown in Roxburgh's analysis, precludes the possibility of his species being referred to *P. articulata*, apart from the fact that *P. articulata*, though very common elsewhere in Bengal, does not seem to have ever been met with in our area. It is not impossible that *Andropogon conjugatus* may be a corresponding reduced state of *Pollinia argentea*, but so far no examples of that species, which was, moreover, well known to Roxburgh, have been communicated to Herb. Calcutta, bearing the necessary superficial resemblance to his drawing of *Andropogon conjugatus*.

641. Manisuris Sw.

* **Manisuris granularis** Linn. f.; B. P. ii. 1191. *Peltophorus granularis* H. S. 709.

Rather rare in dry meadows west of the river Hughli; not recorded from our area by Voigt and perhaps only a casual with us.

642. Rottboëllia Linn. f.

* **Rottboëllia compressa** Linn. f.; B. P. ii. 1192. *R. glabra* H. S. 709.

v. *Baksa*.

In pastures, general.

VAR. * **fasciculata** Hack *Hemarthria compressa* H. S. 708.

v. *Pani sharu.*

Edges of pools and ditches, general.

* **Rottboellia protensa** Hack.; B. P. ii 1192.

v. *Baksa.*

In pastures, general.

* **Rottboellia exaltata** Linn. f.; H. S 709; B. P. ii. 1192

v. *Bira swati.*

Waste places and near pools, general.

643. Mnesithea Kunth.

* **Mnesithea lævis** Kunth, B P. ii. 1193 *Thyridostachyum perforatum* H. S. 708.

v. *Karki.*

Rich pastures, everywhere.

644. Apluda Linn.

* **Apluda varia** Hack. SUB.-SP. **mutica** Hack.; B. P. ii. 1194. *A. geniculata* H. S. 708.

In hedges and on river banks, general.

SUB-SP. * **aristata** Hack.; B. P. ii. 1194. *A. aristata* H. S. 708.

v. *Chun karki.*

In hedges and waste places, west of the river Hughli.

645. Ischæmum Linn.

* **Ischæmum aristatum** Linn. SUB-SP. **imberbe** Hack.; B. P. ii. 1196. *I. aristatum* H. S. 708.

v. *Melencha.*

Waste places and hedges about Calcutta, general, but perhaps only introduced in our area.

* **Ischæmum rugosum** Salisb.; H. S. 703; B. P. ii. 1196.

v. *Moraro.*

Roadsides, waste places, hedges, everywhere.

Ischæmum semisagittatum Roxb.; B. P. ii. 1196. *Spodiopogon semisagittatus* H. S. 706.

Near Calcutta (*Roxburgh*) and Serampore (*Voigt*); doubtless both records are correct but there are no specimens of the grass from our area in Herb. Calcutta. The species is widespread in the Deccan, but is probably only a casual in Lower Bengal.

Ischæmum conjugatum Roxb.; B. P. ii. 1196. *Spodiopogon conjugatus* H. S. 706.

Near Calcutta (*Roxburgh*) and Serampore (*Voigt*); again both records are doubtless correct but are worth while verifying as there is no Lower Bengal specimen in Herb. Calcutta. Like the preceding species this is a Deccan grass and is almost certainly only a casual in the Gangetic delta; in Ceylon whence it has also been recorded, Trimen thinks it is only naturalised.

* **Ischæmum ciliare** Retz; B. P. ii. 1196. *Spodiopogon geniculatus* H. S. 706.

Western Hughli district in dry waste places, rare.

646. Arthraxon Beauv.

Arthraxon microphyllus Hochst.; B. P. ii. 1199.

Not uncommon in new pastures and in open grassy glades about Shibpur and Calcutta, but probably not indigenous in our area though plentiful in most parts of India, and possibly a recent introduction since it is not described by Roxburgh and is not recorded by Voigt.

647. Andropogon Linn.

Andropogon Schœnanthus Linn.; B. P. ii. 1203. *A. Martini* H. S. 707.

v. *Agya ghas, Rusa ghas.*

Cultivated in native gardens; native of India.

Andropogon nardus Linn.; B. P. ii. 1203. *A. Schœnanthus* H. S. 706.

v. *Gandha bena.*

Cultivated in native gardens; native of India.

* **Andropogon brevifolius** Sw.; B. P. ii. 1203.

Western Hughli district, rare.

* **Andropogon pertusus** Willd.; H. S. 707; B. P. ii. 1204.

Western Hughli district, common.

* **Andropogon intermedius** R. Br. VAR. **punctatus** Hook. f.; B. P. ii. 1204. *A. punctatus* H. S. 707.

v. *Gandha gurana.*

Banks of rivers and ponds, chiefly east of the river Hughli.

Andropogon Sorghum Brot.; B. P. ii. 1204. VAR. **vulgaris** Hack. *Sorghum vulgare* H. S. 704.

v. *Juar.*

Cultivated; native of S. E. Asia.

VAR. **bicolor** Hack. *Sorghum bicolor* H. S. 704.

v. *Kala deodhan.*

Cultivated; native of India.

VAR. **Roxburghii** Hack. *Sorghum saccharatum* H. S. 704.

v. *Sada deodhan.*

Cultivated; native of India.

* **Andropogon halepensis** Brot.; B. P. ii. 1204. *A. miliformis* H. S. 708.

v. *Kala mucha.*

Hedges, river banks and waste places, occasional; perhaps only a casual in our area.

* **Andropogon squarrosus** Linn. f.; B. P. ii. 1204. *A. muricatus* H. S. 706.

v. *Bena, khas khas.*

In low moist ground, general; sometimes planted deliberately in our area, *e.g* in cleanings in the North-Western Sundribuns.

* **Andropogon aciculatus** Retz; B. P. ii. 1205. *Chrysopogon acicularis* H. S. 704.

v. *Chori kanta*

In barren ground, everywhere.

Andropogon contortus Linn.; B. P. ii. 1205. *Heteropogon contortus* H. S. 706.

In newly laid down pastures about Calcutta, very rare. This species, though so common in most of the dry parts of India, is not recorded from our area by Voigt; the writer has only met with it on three or four occasions, always among the grasses that appear on plots of land that have been dug over and then left bare. It rarely persists for more than a couple of seasons and is undoubtedly only a casual in our area.

* **Andropogon caricosus** Linn.; B. P. ii. 1205. *Lipeocercis serrata* H. S. 705. *Heteropogon tenellus* H. S. 706. *Andropogon binatus* H. S. 708.

v. *Detara, detta.*

In the drier parts of the Hughli district and also in sandy places in the North-Western Sundribuns about Canning Town, but always rare.

* **Andropogon annulatus** Forsk.; B. P. ii. 1205.

A. scandens H. S. 707.

v. *Loari.*

In grassy glades and meadows, general but not common.

VAR. * **Bladhii** Hook. f.; B. P. ii. 1206. *A. Bladhii* H. S. 707.

v. *Loari.*

In grassy glades and meadows, everywhere.

648. Pseudanthistiria Hook. f.

Pseudanthistiria heteroclita Hook. f.; B. P. ii. 1206. *Anthistiria heteroclita* H. S. 708.

Pastures about Calcutta, according to Roxburgh, also at Serampore, according to Voigt; the record is doubtless accurate, but it is worth confirming, because there are no examples of the grass from our area in Herb., Calcutta. The species is a native of the Concan and Canara and it is very probably only a casual in Lower Bengal.

649. Anthistiria Linn.

Anthistiria ciliata Linn. f.; B. P. ii. 1207. *A. scandens* H. S. 708.

Serampore, according to Voigt, quite possibly, but the record needs confirmation; the species is common immediately to the west of our area.

Anthistiria gigantea Cav. VAR. **arundinacea** Hack.; B. P. ii. 1207. *Andropogon arundinaceus* H. S. 706.

Serampore, according to Voigt; a record that needs confirmation; the species is common in North Bengal and in East Bengal, but if it formerly existed in our area it would now seem to have disappeared.

650. Iseilema Hack.

* **Iseilema laxum** Hack.; B. P. ii. 1208.

Goghat, Western Hughli district in dry pastures.

651. Zea Linn.

Zea Mays Linn.; H. S. 709; B. P. ii. 1209.

v. *Makai, bhut.*

Cultivated; native of America.

652. Polytoca R. Br.

* **Polytoca barbata** Stapf; B. P. ii. 1209. *Coix barbata* H. S. 710.

v. *Kanta gurgar, gurgar.*

Rice-fields and sides of ditches, general.

653. Coix Linn.

* **Coix Lachryma-Jobi** Linn.; B. P. ii. 1210. *Coix Lacrima* H. S. 709.
v. *Kanch gurgar, gurgar.*
Rice-fields and sides of ditches, general.

Coix gigantea Kœnig; H. S. 710; B. P. ii. 1210.
v. *Dangagurgar.*
Reported from Serampore by Voigt; the record needs confirmation: the species is common in Chota Nagpur.

* **Coix aquatica** Roxb.; H. S. 710; B. P. ii. 1210.
v. *Jáb-gurgar.*
Floating in wet marshes and ponds, general.

654. Aristida Linn.

* **Aristida Adscensionis** Linn.; B. P. ii. 1211.
Goghat, in dry pastures.

655. Polypogon Desf.

* **Polypogon monspeliensis** H. S. 710; B. P. ii. 1212.
Goghat, sandy river beds; not recorded from our area previously.

656. Sporobolus R. Br.

* **Sporobolus diander** Beauv.; H. S. 711; B. P. ii. 1213.
v. *Bena joni.*
In moist pasture land, general.

* **Sporobolus tremulus** Kunth; B. P. ii. 1213. *S. tenacissimus* H. S 711.
v. *Pani durba.*
In moist pasture land, everywhere.

657. Arundinella Raddi.

* **Arundinella Wallichii** Nees; B. P. ii. 1216. *Oplismenus strictus* H. S. 703.
v. *Ganga bena.*
Goghat, Western Hughli district, in dry grassy places.

658. Arundo Linn.

Arundo Donax Linn.; B. P. ii. 1218. *Donax arundinaceus* VAR. *versicolor* H. S. 713. *Amphidonax bengalensis* H. S. 714. *A. bifaria* H. S. 714.
v. *Gaba nal, Unal.* Gardeners' garters.

In ditches in the vicinity of Calcutta chiefly.

The form of this grass with variagated leaves, rather a favourite plant in gardens about Calcutta, is an introduction from Europe and is a form of the European variety of this species. Voigt gives two Indian forms as occurring in our area; the first is the *Gaba nal* (*Arundo bengalensis*) which is the Bengal form of the European *Arundo Donax*; the second which Voigt terms *Unal* is the form of *Arundo Donax* characteristic of the Circar Mountains (Eastern Ghats), Roxburgh's *A. bifaria*. It is doubtful if the latter be really indigenous in our area. The difference between the two grasses is chiefly in habit, the inflorescence in *A. bengalensis* being more lax, in *A. bifaria* more compact; the distinction between the two is much like the distinction between the Teng (*Saccharum arundinaceum*) and the Shur (*Saccharum Sara*), but is less pronounced.

659. **Phragmites** Trin.

* **Phragmites Karka** Trin.; B. P. ii. 1209. *Amphidonax Karka* H. S. 714.

v. *Nal, durma.*

Ditches and river banks, general.

660. **Eragrostis** Beauv.

* **Eragrostis coarctata** Stapf; B. P. ii. 1221.

Goghat, Western Hughli district, in poor dry soil.

Eragrostis aspera Nees. *Poa paniculata* H. S. 716.

Reported from Serampore by Voigt, but the record is most improbable, as the species is confined, so far as is known, to Southern and Western India. Probably some other species is intended but there is no clue as to which.

* **Eragrostis tenella** R. & S. VAR. **plumosa** Stapf; B. P. ii. 1221. *Poa plumosa* H. S. 715.

Grassy places and roadsides everywhere.

VAR. * **viscosa** Stapf; B. P. ii. 1222. *Poa viscosa* H. S. 715.

Dry grassy places, general.

VAR. * **breviculmis** Stapf; B. P. ii. 1222.

Dry grassy places, occasional.

Eragrostis interrupta Beauv. VAR. **Kœnigii** Stapf; B. P. ii. 1222. *Poa nutans* H. S. 715.

In moist fields, everywhere.

VAR. * **diarrhena** Stapf; B. P. ii. 1222; *Poa diarrhena* H. S. 715.

In moist fields, general.

VAR. **tenuissima** Staof; B. P. ii. 1222. *Poa tenella* H. S. 716.
In pasture land, general.

* **Eragrostis amabilis** W. & A.; B. P. ii. 1222. *Poa unioloides* H. S. 716.
v. *Koni.*
Dry grassy places, general.

* **Eragrostis gangetica** Steud.; B. P. ii. 1222. *Poa gangetica* H. S. 716.
River banks and moist pastures, general.

* **Eragrostis stenophylla** Hochst.: B. P. ii. 1222. *Poa elegantula* H. S. 715.
Moisture pastures, general.

* **Eragrostis major** Host; B. P. ii. 1223. *Poa Roxburghiana* H. S. 716.
Dry banks, old walls and waste ground; west of the river Hughli.

* **Eragrostis minor** Host; B. P. ii. 1223.
Waste places, occasional.

* **Eragrostis tremula** Hochst.; B. P. ii. 1223. *Poa multiflora* H. S. 716.
Goghat, in Western Hughli district; also at Serampore according to Voigt.

* **Eragrostis pilosa** Beauv.; B. P. ii. 1223. *Poa punctata* H. S. 716.
v. *Tanajinuya.*
In grassy places, chiefly west of the river Hughli.

* **Eragrostis cynosuroides** Beauv.; B. P. ii. 1223. *Poa cynosuroides* H. S. 716.
v. *Kusha.*
In dry grassy places, general.

661. Myriostachya Hook. f.

* **Myriostachya Wightiana** Hook. f.; B. P. ii. 1224.
v. *Nalai.*
Western Sundribuns, on margins of creeks.

662. Diplachne Beauv.

Diplachne fusca Beauv.; B. P. ii. 1225.
In swampy fields to the south-east of Calcutta and in the cleanings of the North-Western Sundribuns, occasional; almost certainly only a casual in our area, though a common grass in *usar* lands in the Upper Gangetic Plain.

663. Leptochloa Beauv.

* **Leptochloa filiformis** R. & S.; B. P. ii. 1225. *Cynodon filiformis* H. S. 712.
v. *Chhota pini nati.*
Moist grassy places, general.

* **Leptochloa chinensis** Nees; B. P. ii. 1225. *Poa chinensis* H. S. 716.
v. *Bara pini nati.*
Moist grassy places, general.

664. Microchloa R. Br.

* **Microchloa setacea** R. Br.; H. S. 712; B. P. ii. 1226.
Dry banks and old walls, rare.

665. Cynodon Pers.

* **Cynodon dactylon** Pers.; H. S. 712; B. P. ii. 1227.
v. *Dúbh, Durba.*
Roadsides and dry grass lands, general.

666. Chloris Sw.

* **Chloris virgata** Sw.; B. P. ii. 1228.
Goghat, Western Hughli district, in dry grassy places.

* **Chloris barbata** Sw.; H. S. 711; B. P. ii. 1228.
In waste grassy places, everywhere.

667. Eleusine Gærtn.

* **Eleusine indica** Gærtn.; H. S. 713; B. P. ii. 1229.
v. *Mal ankura.*
In fields and waste places, everywhere.

Eleusine Coracana Gærtn.; H. S. 712; B. P. ii. 1229.
v. *Marua.*
Cultivated; a native of India.

* **Eleusine ægyptiaca** Desf.; B. P. ii. 1230. *Dactyloctenuim ægyptiacum* H. S. 712.
v. *Makra, makar juli.*
Waste places, roadsides, fields, everywhere.

668. Triticum Linn.

Triticum vulgare Linn.; H. S. 715; B. P. ii. 1231.
v. *Gehum.* Wheat.
Very occasionally sown in our area.

669. Hordeum Linn.

Hordeum vulgare Linn.; B. P. ii. 1231. *H. hexastichon* H. S. 714.
v. *Jao, jab, javo.* Barley.
Very occasionally sown in our area.

670. Bambusa Linn.

Bambusa nana Roxb.; H. S. 719, B. P. ii. 1232.
v *Chhota bans*
Cultivated as a hedge plant, native of China.

Bambusa Tulda Roxb, B P. ii 1232. *Dendrocalamus Tulda* H. S 718
v. *Tulda bans, matela bans, piah bans.*
Cultivated; native of Eastern India.

Bambusa Balcooa Roxb, B P ii. 1233. *Dendrocalamus Balcooa* H. S 718
v. *Balku bans, dhuli bans, palu bans.*
Cultivated; native of Eastern India

Bambusa vulgaris Schrad, B. P. ii. 1233. *Dendrocalamus Tulda* VAR γ H S 718
v *Bashini bins*
Cultivated, native of Malaya.

Bambusa arundinacea Willd, H. S. 719, B P. ii. 1233. *B. spinosa* H. S. 719
v *Bans, Behri bans*
Cultivated, native of the Circars and Orissa.

CRYPTOGAMIA.

PTERIDOPHYTA.

CXXI.—POLYPODIACEÆ.

671. Davallia Sm.

Davallia multiflora Roxb., B P. ii. 1241. *D. parallela* H S 735
Serampore, according to Voigt, but an improbable record, the species is to be found in Chota Nagpur but is not at all likely to occur in our area.

672. Adiantum Linn.

Adiantum lunulatum Burm, H. S. 735, B. P. ii. 1243.
v. *Kali jhamp, kali jhant.*
Old walls, throughout our area, everywhere.

* **Adiantum caudatum** Linn.; H. S. 735; B. P. ii. 1243.

On old walls about Calcutta, Chandernagore, Shibpur and elsewhere, rare.

This species is not cited by Voigt as occurring in our area and is recorded by Roxburgh as having been introduced to the Calcutta garden by H. T. Colebrooke. There is a manuscript note in Herb, Calcutta, by Kurz, to the effect that though it had been collected near Shibpur by Mr. John Scott, Kurz had never met with it himself. Besides Scott's Shibpur record, however, the writer is able to add one or two from Calcutta and one from Chandernagore. There is, however, little doubt that the species should be considered in our area only an introduced or at most a casual species.

673. Pteris Linn.

* **Pteris longifolia** Linn.; B. P. ii. 1245. *P. amplectens* H. S. 735.

Waste places, general.

Pteris cretica Linn.; B. P. ii 1245.

Cultivated and sometimes in abandoned gardens as if wild.

674. Ceratopteris Brogn.

* **Ceratopteris thalictroides** Brogn.; H. S. 736; B P. ii. 1246.

v. *Jangli jhao.*

In wet places and marshes, general.

675. Nephrodium Rich.

* **Nephrodium unitum** Sieb.; B. P. ii. 1252. *Aspidium unitum* H. S. 734.

v. *Panka krul*

In swampy ground, general.

* **Nephrodium aridum** Bak; B. P. ii. 1253. *Polypodium semisagittatum* H. S. 734.

Western Sundribuns.

* **Nephrodium molle** Desv.; B. P. ii. 1253.

Waste places, occasional.

676. Nephrolepis Schott.

Nephrolepis cordifolia Presl.; B. P. ii. 1255. *Aspidium flagelliferum* H. S. 734.

Waste places, west of the river Hughli, occasional; possibly in our area only an escape.

677. Polypodium Linn.

***Polypodium proliferum** Roxb.; H. S. 734; B. P. ii. 1257.
v. *Dapu.*
Grassy moist places and sides of ditches, general.

***Polypodium adnascens** Sw.; B. P. ii. 1257. *P. pertusum* H. S. 734.
On trees in the Western Sundribun forests.

***Polypodium irioides** Lamk; B. P. ii. 1258. *P. glabrum* H. S. 734.
v. *Chittea bora.*
On trees in village-shrubberies, general.

***Polypodium quercifolium** Linn.; H. S. 734; B. P. ii. 1258.
v. *Gurúr.*
On trees in village-shrubberies, general.

678. Vittaria Sw.

***Vittaria elongata** Sw., B. P. ii. 1259. *Pteris angustifolia* H. S. 735.
On trees in the Sundribuns.

679. Drymoglossum Presl.

Drymoglossum piloselloides Presl; B. P. ii. 1259. *Notholaena piloselloides* H. S. 734.
Serampore, according to Voigt; the record is not impossible as the species is not uncommon on trees in the forests of the *Eastern* Sundribuns. It has not, however, been collected in the Western Sundribuns nor, since Voigt's day, has it been recorded from elsewhere in our area.

680. Hemionitis Linn.

***Hemionitis arifolia** Bedd.; B. P. ii. 1259. *H. cordifolia* H. S. 734.
v. *Chakuliya.*
In shady groves, not uncommon.

681. Acrostichum Linn.

***Acrostichum palustre** Bedd.; B. P. ii. 1260. *Lomaria scandens* H S. 735.
North-Western Sundribuns, and marshy places south-east of Calcutta, climbing on trees.

***Acrostichum aureum** Linn.; B. P. ii. 1261. *A. emarginatum* H. S. 734.

In tidal marshes south-west of Calcutta and throughout the Western Sundribuns.

CXXII.—SCHIZÆACEÆ.

682. Lygodium Sw.

Lygodium flexuosum Sw.; H. S. 737; B. P. ii. 1262.
v. *Bhut-raj.*
Recorded from Serampore by Voigt; the record is quite probable as the species is common to the west of our area.

* **Lygodium japonicum** Sw.; B. P. ii. 1262. *Ophioglossum filiforme* H. S. 737.
Hedges and thickets, general.

CXXIII.—OPHIOGLOSSACEÆ.

683. Ophioglossum Linn.

* **Ophioglossum reticulatum** Linn.; H. S. 737; B. P. ii. 1264.
v. *Ektir.*
In grassy glades, general but never common.

684. Helminthostachys Kaulf.

* **Helminthostachys zeylanica** Hook.; B. P. ii. 1264. *H. laciniata* H. S. 737.
v. *Ekbir.*
In shady places, general.

RHIZOCARPEÆ.

CXXIV.—SALVINIACEÆ.

685. Salvinia Schub.

* **Salvinia cucullata** Roxb.; H. S. 740; B. P. ii. 1265.
v. *Indur kana pana, Indurni pana.*
Floating on ponds, general.
S. natans Hoffm. (*Ulki pana* or *Juga pana*) should also be looked for, though it has not yet been definitely recorded from our area.

686. Azolla Lamk.

* **Azolla pinnata** R. Br.; B. P. ii. 1266. *Salvinia imbricata* H. S. 740.
v. *Pana.*
Rice swamps and ponds, everywhere.

CXXV.—MARSILEACAÆ.

687. Marsilea Linn.

* **Marsilea quadrifoliata** Linn.; H. S. 739; B. P. ii. 1266.
v. *Susni shak.*
Edges of ponds and ditches, everywhere.

* **Marsilea minuta** Linn.; B. P. ii. 1266.
Edges of ponds and ditches, general.

CXXVI.—ISOËTACEÆ.

688. Isoetes Linn.

* **Isoetes coromandeliana** Linn. *I. capsularis* H. S. 738.
Serampore, *Griffith, Voigt.*
The specimens collected at Serampore by Griffith have been found by Mr. Baker to belong to *I. coromandeliana.*

CXXVII.—LYCOPODIACEÆ.

689. Lycopodium Linn.

* **Lycopodium Phlegmaria** Linn.; H. S. 738; B. P. ii. 1269.
v *Sitahar.*
On trees in the Sundribuns, also reported by Voigt from Serampore, but the latter record requires confirmation.

CXXVIII.—SELAGINELLACEÆ.

690. Selaginella Spring.

* **Selaginella proniflora** Bak.; B. P. ii. 1270. *Lycopodium imbricatum* H. S. 738.
v. *Hatajhera.*
On damp paths, general.

Selaginella tenera Spring.
Cultivated and at times also sub-spontaneous in damp shady places near P. suburban gardens, about Chandernagore and Shibpur.

BRYOPHYTA.

CXXIX.—FISSIDENTACEÆ.

691. Fissidens Hedw.

* **Fissidens bengalensis** Hampe. *F. bryoides* H. S. 741.
Heavy soil, general.

CXXX.—CALYMPERACEÆ.

692. Calymperes Sw.

* **Calymperes tenerum** C. Muell.
 On tree trunks, general.

CXXXI.—POTTIACEÆ.

693. Barbula Hedw.

* **Barbula orientalis** Willd. *B. indica* H. S 741
 On damp soil, general.
* **Barbula gangetica** C. Muell.
 On damp soil, occasional.

694. Splachnobryum C. Muell.

* **Splachnobryum indicum** C. Muell.
 On old walls, especially on the lime courses between the bricks, everywhere.

CXXXII.—FUNARIACEÆ.

695. Physcomitrium Fuern.

* **Physcomitrium cyathocarpum** Mitten.
 Damp soil, general.

CXXXIII.—MARCHANTIACEÆ.

696. Cyathodium Kunze

* **Cyathodium albonitens** Schiffn.
 On damp soil in gardens, general.

697. Athalamia Falc.

* **Athalamia pinguis** Falc.
 On damp soil.

ALGÆ.

CXXXIV.—ZYGNEMACEÆ.

698. Spirogyra Link.

* **Spirogyra elongata** Kg.
 In rice-fields, general.
* **Spirogyra nitida** Lk.
 Howrah district.

* **Spirogyra Heeriana** Nægeli.
Calcutta.

CXXXV.—MESOCARPACEÆ.

699. Mougeotia Wittr.

* **Mougeotia affinis** Kg.
Matla, in brackish water.

CXXXVI.—PROTOCOCCACEÆ.

700. Stomatochytrium Cunningh.

* **Stomatochytrium Limnanthemum** Cunningh
Endophytic in leaves of *Limnanthemum indicum*.

701. Protococcus Ag.

* **Protococcus cohærens** Kg.
Damp walls.

CXXXVII.—ULVACEÆ.

702. Enteromorpha Harv.

* **Enteromorpha intestinalis** Lk.
Salt-lakes near Calcutta.

CXXXVIII.—ULOTHRICACEÆ.

703. Ulothrix Kg.

* **Ulothrix pectinalis** Kg.
Ponds and marshes, Howrah district.

704. Conferva Lagerh.

* **Conferva bombycina** Wille.
River Hughli near Kidderpore; Botanic Garden, Shibpur, in ponds (VAR. β. **crassior** Mart).

* **Conferva antillarum** Kg.
Salt-lakes, Calcutta.

CXXXIX.—CHÆTOPHORACEÆ.

705. Chætophora Schrank.

* **Chætophora chlorotica** Kg.
Salt-lakes, near Calcutta.

CXL.—MYCOIDEACEÆ.

706. Mycoidea Cunningh.

* **Mycoidea parasitica** Cunningh.
Parasitic on leaves of *Citrus, Michelia, Orchidaceæ*, etc.

CXLI.—ŒDOGONIACEÆ.

707. Œdogonium Link.

* **Œdogonium scutatum** Kg.
Ponds, Howrah district.

CXLII.—CLADOPHORACEÆ.

708. Rhizoclonium Kg.

* **Rhizoclonium antillarum** Kg.
Matla, in brackish water.

709. Cladophora Kg.

* **Cladophora bengalensis** Mart.
Barrackpore.

* **Cladophora Rottleri** Kg.
Howrah.

* **Cladophora simpliciuscula** Kg.
Kidderpore, on walls submerged at high tide.

CXLIII.—CHARACEÆ.

710. Nitella Ag.

* **Nitella oligospira** A. Br.
Ponds, general.

* **Nitella hyalina** Ag.
Ponds, everywhere.

* **Nitella Roxburghii** A. Br.
Ponds, general.

711. Chara Linn.

* **Chara flaccida** A. Br.
Ponds, everywhere.

* **Chara zeylanica** Willd.
Marshes at Matla.

* **Chara fœtida** A. Br.
Ponds, general.

* **Chara verticillata** Roxb.
Ponds, general.

CXLIV.—ENCŒLIACEÆ.

712. Encœlium, Kg.

* **Encœlium vesicatum** Kg.
Banks of canal near Salt-lakes, Calcutta.

CXLV.—COMPSOPOGONACEÆ.

713. Compsopogon Montagne.

* **Compsopogon Hookeri** Montagne.
Canal banks near Calcutta salt-lakes; marshes at Matla.

CXLVI.—RHODOPHYLLIDACEÆ.

714. Catanella Grev.

* **Catanella Opuntia** Grev.
Salt-lakes near Calcutta; banks of river Hughli.

CXLVII.—DELESSERIACEÆ.

715. Caloglossa J Ag.

* **Caloglossa Leprieurii** J. Ag.
Salt-lakes near Calcutta; Kidderpore on walls covered at high tide.

716. Delesseria Lamouroux.

* **Delesseria bengalensis** Martens (sub *Hypoglossum*).
Matla, in tidal pools.

* **Delesseria pygmæa** Martens (sub *Hypoglossum*).
Salt-lakes, Calcutta; Baliaghat Canal.

CXLVIII.—RHODOMELACEÆ.

717. Polysiphonia Grev.

* **Polysiphonia rufo-lanosa** Harv.
Submerged branches in river Hughli.

* **Polysiphonia angustissima** Kg.
Salt-lakes, Calcutta.

* **Polysiphonia polychroma** Mart.
Salt-lakes, Calcutta.

718. **Bostrychia** Montagne.

* **Bostrychia rivularis** Harv.
Salt-lakes, near Calcutta.

CXLIX.—CERAMIACEÆ.

719. **Hormoceras** Kg

* **Hormoceras flaccidum** Ag.
Salt-lakes, near Calcutta.

CL.—CHROOCOCCACEÆ.

720. **Gloeocapsa** Kg.

* **Gloeocapsa Kurziana** Mart.
Botanic Garden, Shibpur.

* **Gloeocapsa rupestris** Kg.
On submerged branches, river Hughli.

721. **Microcystis** Kg.

* **Microcystis æruginosa** Kg.
Tanks at Shibpur.

CLI.—OSCILLATORIACEÆ.

722. **Oscillatoria** Vauch.

* **Oscillatoria amphibia** Ag.
On masonry steps of ghats both below and above the water line.

* **Oscillatoria antliaria** Mart.
Muddy river banks.

* **Oscillatoria Cortiana** Menengh.
In tanks.

* **Oscillatoria Froelichii** Kg.
Floating in ponds.

* **Oscillatoria Grateloupii** Bory.
Wet rice-fields.

* **Oscillatoria interrupta** Mart.
Mud of dried up ponds.

* **Oscillatoria Juliana** Menengh.
Sealdah, in drains.

* **Oscillatoria Kurziana** Mart.
Botanic Garden, Shibpur, in water in flowerpots.

* **Oscillatoria limnosa** Ag.
In tanks.

* **Oscillatoria tenerrima** Kg.
Salt-lakes, Calcutta.

* **Oscillatoria tenuis** Lyngb.
In ponds

* **Oscillatoria versicolor** Mart.
Salt-lakes

723. Spirulina Turp.

* **Spirulina oscillarioides** Turp.
Salt-lakes, Calcutta.

724. Phormidium Kg.

* **Phormidium oryzetorum** Mart.
Rice-fields; the commonest Alga in Lower Bengal.

* **Phormidium Lyngbyaceum** Kg.
Salt-lakes, Calcutta.

725. Lyngbya C. A. Ag.

* **Lyngbya crispa** Kg.
Salt-lakes, Calcutta.

* **Lyngbya circinnata** Kg.
Swamps and ponds general.

* **Lyngbya cinerascens** Kg.
Salt-lakes, Calcutta.

* **Lyngbya solitaris** Kg.
Ponds, general.

726. Leibleinia Endl.

* **Leibleinia Juliana** Kg.
Salt-lakes, Calcutta.

727. Hypheothrix Kg.

* **Hypheothrix tenax** Mart.
Salt-lakes, Calcutta.

728. **Hydrocoleum** Kg.

* **Hydrocoleum Kurzii** Mart.
Muddy banks of canals, also salt-lakes.

* **Hydrocoleum Lenormandi** Mart.
Salt-lakes, Calcutta.

729. **Microcoleus** Desmaz.

* **Microcoleus salinus** (Kg.).
Kidderpore near Calcutta.

* **Microcoleus Lyngbyei** Kg.
Calcutta, salt-lakes

730. **Leptothrix** Kg.

* **Lepotthrix subtillissima** Kg.
Damp walls, general.

* **Leptothrix mamillosa** Menengh.
Salt-lakes, Calcutta.

731. **Dictyonema** Ag.

* **Dictyonema fuscescens** Mart.
Stagnant pools, about Calcutta.

CLII.—NOSTOCACEÆ.

732. **Nostoc** Vauch.

* **Nostoc gregarium** Thuret.
Submerged in ponds.

733. **Anabæna** Bory.

* **Anabæna mollis** Kg
Muddy edges of ponds, also in water.

734. **Cylindrospermum** Kg.

* **Cylindrospermum spirale** Kg.
Floating in ponds.

735. **Hormosiphon** Kg.

* **Hormosiphon coriaceus** Kg.
Banks of the river Hughli at Botanic Garden, Shibpur.

CLIII.—SCYTONEMATACEÆ.

736. Scytonema J. A. Ag.

* **Scytonema aerugineo-cinereum** Kg
Walls about Calcutta, common.

* **Scytonema aureum** Meneng.
Mud-banks of Hughli river.

* **Scytonema granulatum** Mart.
Salt-lakes, Calcutta.

* **Scytonema palmarum** Mart.
Within sheaths of palms, Botanic Garden.

* **Scytonema tomentosum** Kg.
Botanic Garden, Shibpur.

* **Scytonema Veillardi** Mart.
On walls, general.

CLIV.—STIGONEMATACEÆ.

737. Fischeria Kg.

* **Fischeria tenuis** Mart.
Damp walls with northern exposure.

CLV.—RIVULARIACEÆ.

738. Mastichonema Schwabe.

* **Mastichonema granulatum** Mart.
Stems of grasses in ponds and ditches.

* **Mastichonema cæspitosum** Kg.
Stems of *Sesbania* in ponds and ditches.

739. Rivularia C. A. Ag.

* **Rivularia Lens** Meneng.
In tanks, on *Vallisneria* leaves.

CLVI.—BACILLARIACEÆ.

740. Navicula Bory.

* **Navicula velox** Kg.
Matla in marshes.

* **Navicula cryptocephala** Kg.
Botanic Garden, Calcutta.

741. **Nitzschia** Hassal.

* **Nitzschia dissipata** Grun.
Matla, in marshes.

742. **Gloeotila** Kg.

* **Gloeotila concatenata** Kg.
Tanks and pools about Shibpur.

LICHENES.

743. **Pyrgidium** Nyl.

* **Pyrgidium bengalense** Nyl.
Botanic Gardens, on an old *Ravenala madascariensis*, only once met with.

744. **Ramalina** Fries.

* **Ramalina angulosa** Laus
Botanic Garden, Shibpur.

* **Ramalina calicaris** Ach.
On trees, general.

745. **Parmelia** Fries.

* **Parmelia perlata** Ach.
Trees, general; especially on mangoes.

746. **Physcia** DC.

* **Physcia picta** Sw.
Trees, everywhere.

747. **Pyxine** Fries.

* **Pyxine Cocaes** Nyl.
On trees, general, especially on palms.

* **Pyxine Meissneri** Tuck.
On trees, general.

748. **Lecanora** Ach.

* **Lecanora aurantiaca** Lightf.
General.

* **Lecanora Encephalarti** Nyl.
Botanic Garden, Shibpur, on *Encephalartes* only.

* **Lecanora colubrina** Ach.
Botanic Garden, Shibpur.

* **Lecanora subfusca** VAR. **distans** Ach
General.

* **Lecanora sarcopis** VAR. **subeffusa** Nyl.
Botanic Garden, Shibpur.

* **Lecanora granifera** Ach.
Botanic Garden, Shibpur.

749. Gyrostomum Fries.

* **Gyrostomum scyphuliferum** Ach.
Botanic Garden, Shibpur.

750. Lecidea Fries.

* **Lecidea carneo-lutea** Turn.
Botanic Garden, Shibpur.

* **Lecidea medialis** Tuck.
Botanic Garden, Shibpur, on *Cycas Rumphii*.

* **Lecidea propinquella** Nyl.
Botanic Garden, Shibpur.

* **Lecidea spadicea** Tuck.
Botanic Garden, Shibpur.

* **Lecidea patellarioides** Nyl.
Botanic Garden, Shibpur.

* **Lecidea triphragma** Nyl.
General.

* **Lecidea premnea** VAR. **malargyra** Nyl.
General.

751. Opegrapha Humb.

* **Opegrapha Martii** Nyl.
Botanic Garden, Shibpur.

* **Opegrapha varia** VAR. **pulicaris** Hoffm.
Botanic Garden, Shibpur.

* **Opegrapha vulgata** Ach.
General.

* **Opegrapha inæqualis** Fée.
Botanic Garden, Shibpur.

752. **Platygrapha** Nyl.

* **Platygrapha pallidella** Nyl.
General, especially on palm trees.

* **Platygrapha glaucomoides** Nyl.
General, on trees

* **Platygrapha stigmatica** Krempelh.
Botanic Garden, Shibpur.

753. **Stigmatidium** Meyer.

* **Stigmatidium microcephalum** Nyl.
Botanic Garden, Shibpur, on dicotyledonous trees.

* **Stigmatidium melastigma** Nyl.
Botanic Garden, Shibpur.

754. **Arthronia** Eschw.

* **Arthronia cinnabarina** Nyl.
On trees with coarse bare branches, general.

* **Arthronia antillarum** Fée.
On dicotyledonous trees, general.

* **Arthronia impolitella** Nyl.
Botanic Garden, Shibpur.

* **Arthronia abnormis** Ach
On dicotyledonous trees, general.

* **Arthronia circumalbicans** Nyl.
On *Pandanus* stems, occasional.

Arthronia astroidea VAR. **Swartziana** Ach.
Botanic Garden, Shibpur.

755. **Chiodecton** Ach.

* **Chiodecton heterotropum** Nyl.
Botanic Garden, Shibpur.

756. **Graphis** Ach.

* **Graphis scripta** Ach.
Frequent on bark of decayed *Pandanus*.
Two varieties VAR. **pulverulenta** Nyl. and VAR. **subvirginea** Nyl occur along with the typical form.

* **Graphis obtecta** Nyl.
General, on branches of various shrubs.

757. Glyphis Ach.

* **Glyphis cicatricosa** Ach.
 Botanic Garden, Shibpur.
 VAR. * **favulosa** Ach.
 Botanic Garden, Shibpur.

758. Verrucaria Pers.

* **Verrucaria nitida** Schrad.
 Botanic Garden, Shibpur.
* **Verrucaria libricola** Fée.
 General, on trees, especially on *Bombax*.
* **Verrucaria tropica** Ach.
 On dicotyledonous trees, general.
* **Verrucaria diluta** Fée.
 Botanic Garden, Shibpur.
* **Verrucaria albo-atra** Krempelh.
 On dicotyledonous trees, general.
* **Verrucaria majuscula** Nyl.
 Botanic Garden, Shibpur.

759. Thelopsis Nyl.

* **Thelopsis inordinata** Nyl.
 Botanic Garden, Shibpur.

760. Melanotheca Nyl.

* **Melanotheca indica** Nyl.
 Botanic Garden, Shibpur, on *Pandanus*.

761. Trypethelium Ach.

* **Trypethelium Sprengelii** Ach.
 On dicotyledonous trees, general.
* **Trypethelium pallescens** Fée.
 Botanic Garden, Shibpur.
* **Trypethelium leucotrypum** Nyl.
 Botanic Garden, Shibpur.

762. Lepraria Ach.

* **Lepraria flava** Ach.
 On trees, general, especially on palms, such as *Areca*, *Arenga*, etc

G. I. C. P. O.—No, 2639 D. B. S. I.—31-12-1904.—450.—P. M. M.& B. N. D

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